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THE PLANT QUARANTINE AND CONTROL ADMINISTRATION

ITS HISTORY, ACTIVITIES AND ORGANIZATION

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SERVICE MONOGRAPHS
OF THE
UNITED STATES GOVERNMENT
No. 59

THE PLANT QUARANTINE AND CONTROL ADMINISTRATION

ITS HISTORY, ACTIVITIES AND ORGANIZATION

BY
GUSTAVUS A. WEBER

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FOREWORD

The first essential to efficient administration of any enterprise is full knowledge of its present make-up and operation. Without full and complete information before them, as to existing organization, personnel, plant, and methods of operation and control, neither legislators nor administrators can properly perform their functions.

The greater the work, the more varied the activities engaged in, and the more complex the organization employed, the more imperative becomes the necessity that this information shall be available—and available in such a form that it can readily be utilized.

Of all undertakings, none in the United States, and few, if any, in the world, approach in magnitude, complexity, and importance that of the national government of the United States. As President Taft expressed it in his message to Congress of January 17, 1912, in referring to the inquiry being made under his direction into the efficiency and economy of the methods of prosecuting public business, the activities of the national government " are almost as varied as those of the entire business world. The operations of the government affect the interest of every person living within the jurisdiction of the United States. Its organization embraces stations and centers of work located in every city and in many local subdivisions of the country. Its gross expenditures amount to billions annually. Including the personnel of the military and naval establishments, more than half a million persons are required to do the work imposed by law upon the executive branch of the government.

" This vast organization has never been studied in detail as one piece of administrative mechanism. Never have the foundations been laid for a thorough consideration of the relations of all of its parts. No comprehensive effort has been made to list

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its multifarious activities or to group them in such a way as to present a clear picture of what the government is doing. Never has a complete description been given of the agencies through which these activities are performed. At no time has the attempt been made to study all of these activities and agencies with a view to the assignment of each activity to the agency best fitted for its performance, to the avoidance of duplication of plant and work, to the integration of all administrative agencies of the government, so far as may be practicable, into a unified organization for the most effective and economical dispatch of public business."

To lay the basis for such a comprehensive study of the organization and operations of the national government as President Taft outlined, the Institute for Government Research has undertaken the preparation of a series of monographs, of which the present study is one, giving a detailed description of each of the distinct services of the government. These studies are being vigorously prosecuted, and it is hoped that all services of the government will be covered in a comparatively brief space of time. Thereafter, revisions of the monographs will be made from time to time as need arises, to the end that they may, as far as practicable, represent current conditions.

These monographs are all prepared according to a uniform plan. They give: first, the history of the establishment and development of the service; second, its functions, described not in general terms, but by detailing its specific activities; third, its organization for the handling of these activities; fourth, the character of its plant; fifth, a compilation of, or reference to, the laws and regulations governing its operations; sixth, financial statements showing its appropriations, expenditures and other data for a period of years; and finally, a full bibliography of the sources of information, official and private, bearing on the service and its operations.

In the preparation of these monographs the Institute has kept steadily in mind the aim to produce documents that will be of direct value and assistance in the administration of public affairs. To executive officials they offer valuable tools of administration. Through them, such officers can, with a minimum of effort, inform themselves regarding the details, not only of their own services, but of others with whose facilities, activities, and methods it is desirable that they should be familiar. Under present conditions services frequently engage in activities in ignorance of the fact that the work projected has already been done, or is in process of execution by other services. Many cases exist where one service could make effective use of the organization, plant or results of other services had they knowledge that such facilities were in existence. With the constant shifting of directing personnel that takes place in the administrative branch of the national government, the existence of means by which incoming officials may thus readily secure information regarding their own and other services is a matter of great importance.

To members of Congress the monograph should prove of no less value. At present these officials are called upon to legislate and appropriate money for services concerning whose needs and real problems they can secure but imperfect information. That the possession by each member of a set of monographs such as is here projected, prepared according to a uniform plan, will be a great aid to intelligent legislation and appropriation of funds can hardly be questioned.

To the public, finally, these monographs will give that knowledge of the organization and operations of their government which must be had if an enlightened public opinion is to be brought to bear upon the conduct of governmental affairs.

These studies are wholly descriptive in character. No attempt is made in them to subject the conditions described to criticism, nor to indicate features in respect to which changes might with advantage be made. Upon administrators themselves falls responsibility for making or proposing changes which will result in the improvement of methods of administration. The primary aim of outside agencies should be to emphasize this responsibility and facilitate its fulfillment.

While the monographs thus make no direct recommendations for improvement, they cannot fail greatly to stimulate efforts in that direction. Prepared as they are according to a uniform plan, and setting forth as they do the activities, plant, organization, personnel and laws governing the several services of the government, they will automatically, as it were, reveal, for example, the extent to which work in the same field is being performed by different services, and thus furnish the information that is essential to a consideration of the great question of the better distribution and coördination of activities among the several departments, establishments, and bureaus, and the elimination of duplication of plant, organization and work. Through them it will also be possible to subject any particular feature of the administrative work of the government to exhaustive study, to determine, for example, what facilities, in the way of laboratories and other plant and equipment, exist for the prosecution of any line of work and where those facilities are located; or what work is being done in any field of administration or research, such as the promotion, protection and regulation of the maritime interests of the country, the planning and execution of works of an engineering character, or the collection, compilation and publication of statistical data, or what differences of practice prevail in respect to organization, classification, appointment, and promotion of personnel.

To recapitulate, the monographs will serve the double purpose of furnishing an essential tool for efficient legislation, administration and popular control, and of laying the basis for critical and constructive work on the part of those upon whom responsibility for such work primarily rests.

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THE PLANT QUARANTINE AND CONTROL ADMINISTRATION

ITS HISTORY, ACTIVITIES, AND ORGANIZATION

CHAPTER I

HISTORY[1]

The Plant Quarantine and Control Administration of the United States Department of Agriculture was established on July 1, 1928, as the result of an appropriation act of May 16, 1928 (45 Stat. L., 539, 564). It carries on the plant quarantine and control work that had previously been the function of the Federal Horticultural Board, and the regulatory work concerning insect pests and plant diseases which was formerly performed by the Bureau of Entomology and the Bureau of Plant Industry of the Department of Agriculture as agents of and in coöperation with the Board. The Administration is responsible for the enforcement of the Plant Quarantine Act of August 20, 1912 (37 Stat. L., 315), as amended; the Insect Pest Act of March 3, 1905 (33 Stat. L., 1269); in coöperation with the Post Office Department, the provision of an act of March 4, 1915 (38 Stat. L., 1113), relating to terminal inspection; the provision of an act of October 6, 1917 (40 Stat. L., 374), relating to Mexican border inspection; and the provision of an act of May 11, 1926 (44 Stat. L., 526), providing for export certification.

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[1] This chapter deals with the history of the former Federal Horticultural Board and of the regulatory work of the Bureaus of Entomology and Plant Industry, and of events leading to and concerning the enforcement of enactments with which the Plant Quarantine and Control Administration has been entrusted. The histories of the Bureaus of Entomology and Plant Industry are given in Monographs No. 60 and 47 respectively.

Until 1912 the United States was the only great nation which was not protected by law from the importation of insect pests, and as a result, this country was said to have been the dumping ground for refuse nursery stock. The failure of Congress to enact the needed remedial legislation resulted in great losses to agriculture and permitted the introduction of some insect pests which have since gained such a foothold in this country that their eradication at present appears hopeless.

Investigation had shown that at least one-half of the injurious insects in this country were of foreign origin. These included the codling moth, the Hessian fly, the asparagus beetle, the hop-plant louse, the cabbage worm, the wheat plant louse, the oyster shell bark louse, the pea weevil, the Croton bug, the Angoumois grain moth, the horn fly of cattle, the cotton-boll weevil, the San Jose scale, the elm-leaf beetle, the black scale, the white fly of the orange, the gipsy moth, the brown-tail moth, the Argentine ant, the alfalfa weevil, and many others.

Much destruction was also being wrought by imported plant diseases, notably, the asparagus rust, the cabbage black-leg, the European canker of the apple tree, the white pine blister rust and many other diseases. The imported insect pests and plant diseases introduced prior to 1912 were at that time causing a loss in farm products estimated at about $1,000,000,000 annually.

In addition to these insect pests and plant diseases which had been introduced prior to 1912, there were many others which had not been, but which were liable at any time to be, imported on nursery stock and other plant shipments and which had equal or still greater capacity for plant destruction.

Federal Plant Inspection before Regulatory Legislation.[2] While the national administration, in the absence of specific regulatory legislation, was thus unable to prevent the importation, by private parties, of insect-infested and disease-infected plants from foreign countries, the Department of Agriculture in 1906 began to exercise a most rigid inspection of all plants imported for its own use. All infested and infected lots of such plants and seeds were fumigated, and whenever fumigation was impracticable they were destroyed. By 1907 the Department of Agriculture, through the Bureau of Plant Industry, had become probably the largest individual importing agency of new stock in the United States. All plants, both imported and home-grown, that were sent out by the Department of Agriculture, were inspected, fumigated, and cleaned when necessary, and certified. During the fiscal year 1907, 916 lots of imported plants were inspected, the largest single lot containing 5,000 plants, and 581 certificates covering distributions by the Department were issued by the Bureau of Entomology. The Bureau of Entomology also thoroughly examined all ornamental plants imported by florists in the District of Columbia.

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[2] The subchapters on "Federal Plant Inspection before Regulatory Legislation," "Early State and Foreign Plant Regulatory Legislation," "Efforts to Secure Federal Plant Regulatory Legislation," and "Plant Quarantine Act of 1912," are based on a draft prepared by Dr. Charles L. Marlatt.

As an illustration, it may be mentioned that in 1910 the Bureau examined a shipment of about two thousand cherry trees, a gift from the city of Tokyo to the United States. These trees were found to be infested with a number of injurious insects and had to be destroyed. A duplication of this gift was later made by the City of Tokyo to the City of Washington, namely, in 1911-12, prior to the date of the passage of the plant quarantine act in August of 1912. This shipment was planted along the Tidal Basin. Unfortunately, these trees were the source of entry of a serious fruit pest known as the oriental fruit worm, which is now widespread in the eastern half of the United States, and is occasioning losses estimated well into the millions.

In 1909 the Bureau organized a sort of voluntary coöperative—state and federal—inspection of commercial imports of nursery stock and other plants. In January of that year it had been advised by the Commissioner of Agriculture of the State of New York that brown-tail moth nests had been found in considerable numbers in shipments of seedling fruit stocks from France, and later advice indicated that a similar condition had been noted in other states. As a result of this very serious situation, the Bureau sent out warning letters to the different state entomologists with the object of getting such officials to make inspection of all shipments into their respective states of such seedling fruit stocks and to collect and destroy the larval nests of this moth. The Bureau also obtained, through the coöperation of the Customs Service, records of all importations and of the railroads concerned in transporting these shipments to destination, and gave advance notification to the appropriate state officials of such movement. During this first year information was thus sent concerning some eight hundred shipments distributed to thirty-five different states. The inspection of these shipments showed not only the presence of the brown-tail moth but of certain other important pests new to or not widely distributed in the United States. This work of inspection of shipments of seedling fruit stocks and other nursery stock was continued by the Bureau until it was taken over in 1912 by the Federal Horticultural Board.

It was realized, however, that effective results could only be obtained by the enactment of a national control and quarantine act, and hence the efforts for such legislation on the part of the scientists of the Department of Agriculture, of many state authorities, and of agricultural organizations were continued until such legislation was obtained.

Early State and Foreign Plant Regulatory Legislation. Apparently the earliest foreign plant regulatory legislation of any importance, of which records are available, concerned two American insects, namely, the Colorado potato beetle and a native American grape gall-louse (*Phylloxera vastatrix*).

The Colorado potato beetle carried by importations of potatoes from America, was found apparently established in a very limited area in Germany in 1874-75, and this area was given such drastic clean-up that the pest never reappeared. Further importations of potatoes, including packing, sacks, etc., was absolutely forbidden by decree of February 26, 1875. A second early instance of such legislation concerned the colony of

Victoria, Australia. The grape gall-louse or *Phylloxera,* by which name this pest soon became generally known, which was originally imported into France from the United States, had been introduced into Victoria about 1872 with vine cuttings from France, and there rather promptly developed a local outbreak of such seriousness as to lead to drastic legislation five years later (1877) for its suppression.

In the United States, plant regulatory legislation was enacted by at least four of our Western states—Kansas, Missouri, Minnesota, and Nebraska, in 1877. This legislation on account of the migratory grasshopper or so-called Rocky Mountain locust had for its purpose not control of migration, which at that time was not deemed possible, but the clean-up and control of the pest in the districts which it had reached in its migratory flights, with the object of stamping out the invasion and preventing further spread and migrations from such areas the following year.

The grape *Phylloxera* was the subject of the first fairly widespread concerted action in Europe in the field of plant quarantine. This American grape pest had been introduced into France with importations of native American grapes about 1859, and during the following twenty years, spread from France to other countries in Central Europe as far eastward as the Black Sea District of Russia, rapidly becoming in such countries an increasing subject of concern, and in the case of France, enormous rewards were offered for any method which would result in its effective control. In the meantime, vineyards were being destroyed over wide areas in the countries reached by the pest. The importance of the wine industry in many of these countries led to a great deal of activity in the study of control, and the literature of the discussions and conferences reached a great volume during the period between its introduction and 1880. In the latter part of this period a good deal of thought was given to the possibility of preventing further introduction from the New World and preventing spread between countries of Europe by restrictions on movement of grape-vines and grape products—

in other words, by quarantine regulations. Such restrictions and regulations reached what proved to be a fairly final status as a result of the work of an international conference held at Bern, Switzerland, in November, 1881.

The *Phylloxera* legislation was apparently the beginning of European realization of the necessity for restrictions on movement of plants and plant products to prevent the dissemination of important plant pests, both as to insects and as to plant diseases, and in the years following 1881, plant quarantine restrictions were promulgated by several European countries affecting various American products in addition to grape, which latter was the only subject concerned at the Bern conference. The most important of these embargoes date from 1898 and had as a basis the San Jose scale scare of that period. As now known, this so-called San Jose scale, named after the town of San Jose in California, where it was first observed, had been introduced into the United States with importations of Chinese ornamentals, flowering peach, etc, some time prior to 1880, and proved to be one of the most dangerous types of scale pests of deciduous trees such as prune, peach, apple, etc. It long remained, however, limited to California, and no thought apparently was given to the necessity of quarantine restrictions to prevent its spread from the Pacific Coast region. About the beginning of the last decade of the nineteenth century, it was carried by shipments of nursery stock across the Rocky Mountains and got foothold in several Eastern nurseries, and by 1898 had aroused a great deal of interest and become the subject of many interstate quarantine restrictions on movement of nursery stock.

In line with the European action, quarantine restrictions against the importation of plants for the purpose of excluding pests were enforced by a considerable number of foreign countries outside of Europe, notably English and French colonies, these restrictions applying not only to the United States but also to the parent countries in Europe, for the purpose of excluding well known crop pests.

In spite of the realization of the source of many of the more important of our crop pests and of the example of foreign countries, there was apparently little thought or effort devoted to the securing of national legislation to prevent or restrict such entry of pests until nearly the end of the last century. A note has already been made of early grasshopper legislation and of the fact that, following the advent of the San Jose scale in the Eastern states, a great deal of legislation resulted, restricting movement of nursery stock on account of this new pest. The volume of this legislation became large enough in 1895 to warrant its collection by the Bureau of Entomology and publication as a special bulletin for the information of all persons and states in interest. This bulletin reproduced the insect control legislation of California, Oregon, Washington, Idaho, and Colorado, and the grasshopper laws of Missouri, Kansas, Minnesota, and Nebraska, as well as foulbrood laws (bees) of New York and Utah. The flood of San Jose scale legislation increasing rapidly with each year, a revised edition of this bulletin was issued by the Bureau of Entomology in 1898, such legislation then involving fifteen states. In this bulletin, eight states are listed as having foulbrood legislation. The third edition of such laws was issued in 1906, and records legislation by practically all of the states of the Union, chiefly on account of the San Jose scale. The only states without such legislation (excluding grasshopper laws) at that time were Arizona, Florida, Kansas, Nebraska, and Vermont. Porto Rico and Hawaii also had enacted similar laws.

As to legislation in the United States of an international character, it is of interest again that what appears to be the first action of this character had, as in the case of Europe, the American grape *Phylloxera* as its incentive. The finding of this pest in 1873, in a vineyard near the town of Sonoma, California, aroused immediate interest, and in the following year suggestions were being made as to the desirability of control legislation. It was not, however, until 1880 that the viticultural and other horticultural interests made the decided move which resulted in the California act of March 4, 1881, " to protect the interests of horticulture and viticulture." This was pioneer action for America and, as subsequently modified and improved, enabled California to enforce, at ports of entry and otherwise, inspection and other measures to prevent the entry of pests from other states and from foreign countries, the only protection under law as to the latter given to the United States for the following period of thirty-one years, namely, until the federal legislation of 1912.

Efforts to Secure Federal Plant Regulatory Legislation. The earliest measure for the prevention of the importation and the interstate transportation of insect-infested plants proposed in the national Congress was a bill[3] introduced on January 15, 1892, by Representative Anthony Caminetti of California "to prohibit the interstate transportation of trees, plants, vines, or other nursery stock infested with scale insects or codling moths, or other pests, or with their eggs or larvæ, or infected with any disease injurious to trees, plants, and vines, and the importation into the United States from any foreign country of any thereof so affected; to provide for penalties for violations thereof, and defining the duties of certain departments of the United States with relation thereto." This bill was referred to the Committee on Agriculture of the House, but no further action was taken on it and no other legislation on this subject was proposed in Congress for several years thereafter.

The earliest concerted effort to obtain federal legislation for the prevention of entry of insect pests in connection with imports of plants and plant products, and for safeguarding as to such pests the transportation in interstate commerce of such plants and products, was made at a convention called by the Ohio State Horticultural Society and held in Washington, on March 5 and 6, 1897.[4] The convention was composed of accredited delegates of horticultural societies, nurserymen's associations, state agricultural boards, grange alliances, agricultural colleges, and experiment stations. Papers were read by Dr. L. O. Howard,

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[3] 54 Cong. 2 sess., H. R. 3876.

[4] The record of work of this convention is given in the report of the proceedings published by the Department of Agriculture in 1897.

Dr. B. T. Galloway and others calling attention to the desirability of an inspection system against foreign insects. After a full discussion of the matter by the delegates, a bill was drafted providing for the inspection of both foreign nursery stock and home-grown stock subject to interstate shipment. This measure was endorsed by the convention and was submitted to Congress. The salient features of the proposed bill were as follows:

Sec. 1. Imported plants and fruits to be held in quarantine at designated ports for inspection and, if necessary, treatment at expense of owners.

Sec. 2. If infested, to be treated or destroyed, with provision for appeal to Secretary of Agriculture, whose decision shall be final.

Sec. 3. If found apparently free from pests, to be certified and released from further restrictions either at port or in interstate commerce. Also provides penalties.

Sec. 4. Provides, on approval of the Secretary, for substitution of inspection of a foreign country for port of entry inspection. Plants so inspected and labeled to be free from further quarantine restrictions.

Sec. 5. Provides for federal inspection and, if necessary, treatment at expense of owner of all nursery stock, etc., as a condition of interstate commerce.

Sec. 6. Provides for rules for inspection; plants so inspected and certified to be free from further restrictions.

Sec. 7. Declares transportation in interstate commerce in violation of Sections 5 and 6 unlawful and provides penalties.

Sec. 8. Provides for acceptance on approval of Secretary of Agriculture of state inspection in lieu of federal inspection.

* * * *

The first bill introduced in Congress based on the recommendation of the Washington Convention was presented by Representative Charles A. Barlow of California on January 18, 1898.[5] On December 4, 1899, Representative James W. Wadsworth of New York introduced substantially the same bill[6] differing only in minor corrections and in adding a section providing that the act should not apply to florists' stock.

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[5] 55 Cong., H. R. 6894.

[6] 56 Cong., H. R. 76.

Neither of these bills met with Congressional approval, and while bills of a similar nature were introduced in Congress on several occasions, and a revision of the above-mentioned bills was introduced by Senator Frank P. Flint of California on February 3, 1908,[7] no important action was taken by Congress in the matter of national plant regulatory legislation during the decade that followed.

The Plant Quarantine Act of 1912. The final and ultimately successful effort to secure federal legislation, covering the period between 1909-12, found its incentive in the heavy infestations of imported nursery stock with brown-tail moth nests and egg-masses of the gipsy moth, particularly in the years 1908-09 already referred to. This situation led Dr. Marlatt, then Assistant Chief of the Bureau of Entomology, to draft a new federal plant quarantine bill. This bill had two main purposes, to prevent the entry of plant pests in connection with importations of plants and plant products, and to control and, if possible, eradicate any new pests having limited foothold within the United States. It will be noted that the important difference between this bill and the bills which followed the Convention of 1897 is the omission of the provisions for the control of movement between states of domestic nursery stock as a general and continuing safeguard, that is, without relation to any particular pest or quarantined area. This feature, general control of interstate movement of domestic nursery stock, had been the chief obstacle to securing legislative action in the earlier effort, largely on account of the failure to come to any agreement as to the feature on the part of the persons in interest—state officers, nurserymen, etc.

The draft of this new bill was, with the approval of the Secretary of Agriculture, submitted to the Chairman of the House Committee on Agriculture, Charles F. Scott of Kansas, and was introduced by him January 29, 1909.[8] There was no opposition to the bill and it very promptly passed the House and, on February 17, 1909, was introduced in the Senate. On February 19, 1909, it was reported out of committee without amendment.

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[7] 60 Cong., S. 4857.

[8] 60 Cong., H. R. 27367.

About this time the Legislative Committee of the American Association of Nurserymen learned of the bill, came to Washington, and made earnest representations of a desire merely to amend the bill in certain minor particulars, and then to aid in its passage. On the basis of this request, Dr. Marlatt got Mr. Scott to recall the bill from the Senate for such amendment. The actual outcome was the immediate development of opposition by the Committee, which delayed the passage of the bill for four years. This delay resulted in the development of a much better measure in the course of the many redrafts and resubmissions to Congress, the bill retaining throughout, however, the fundamental purposes which were embodied in the original draft.

The final draft of the measure was introduced by Representative James S. Simmons of New York on May 3, 1912.[9] It was approved and became law August 20, 1912 (37 Stat. L., 315).

During this long period of nearly four years, when this legislation was before Congress, various hearings were conducted in Congress on the subject of the bill and amendments thereto, participated in by the Department of Agriculture and by entomologists and other officials of states in interest and also by official representatives of the nurserymen's associations. There were also discussions of the measure at various meetings of the associations of entomologists of the United States and of the horticultural inspectors. In general, the attitude of the nurserymen was to have the bill so changed as to place practically no restrictions on imports and particularly to provide for the acceptance of foreign certification in lieu of inspection on this side, a system which was recognized to be practically useless as far as excluding pests was concerned. The bill as finally enacted, therefore, embodied certain concessions to the nurserymen, but these, it has proved, were so fully safeguarded as to involve little, if any, increase of risk.

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[9] 62 Cong., H. R. 24119.

The powers of restriction on imports granted under this act are broad and it would seem to be clear that Congress intended to give the Secretary of Agriculture authority to restrict and control the entry of plants and plant products to the extent necessary to prevent the entry of plant pests.

In a statement issued by the Federal Horticultural Board explaining the scope and purpose of the Plant Quarantine Act, special attention was called to this authority conferred upon the Secretary of Agriculture, in the following words:

> (1) For this purpose, Sections 1 to 5 of the Plant Quarantine Act authorize the Secretary of Agriculture by permit to "condition," to "regulate," and to "restrict" the entry into the United States of nursery stock and other plants and plant products, and make it "unlawful" to import plants and plant products otherwise.
>
> (2) For the same purpose, Section 7 authorizes the Secretary of Agriculture to prohibit the entry of nursery stock and other plants and plant products.

These sections give the *regulating, restricting,* and *prohibiting* powers relative to plant importations under the Plant Quarantine Act which are the basis of the quarantines which have been promulgated with respect to foreign plants and plant products, in other words, the combined authority of Sections 1 to 7 of the act. Section 7, the prohibiting section, permits action by classes of nursery stock or other plants or plant products with respect to "a country or locality where such disease or insect infestation exists." This does not limit the Secretary of Agriculture to act by specific types or varieties of plants or specific kinds of plant products, or as to individual shipments of these. The same is true with respect to the conditioning Sections 1 to 5, where he is required to specify "the class of plants and plant products the importation of which shall be restricted and the country and locality where they are grown."

The act made an original appropriation of $25,000, "to be expended as the Secretary of Agriculture may direct, for the purposes and objects of this act."

Amendments to the Plant Quarantine Act of 1912. The first amendment to the act was made in an appropriation act of March 4, 1913 (37 Stat. L., 828, 854), which added a proviso to Section 7 permitting importation for experimental or scientific purposes by the Department of Agriculture of plants or plant products under quarantine under such conditions as the Secretary of Agriculture may prescribe.

A second amendment was made in an appropriation act of March 4, 1917 (39 Stat. L., 1134, 1165), which amended Section 8 which had originally restricted the promulgation of quarantines to any state, territory, or district of the United States or any portion thereof, which could be definitely determined by the Secretary of Agriculture as being invaded by the plant disease or insect involved. As amended, the act authorizes the Secretary of Agriculture to promulgate a quarantine to include " any State, Territory, or District of the United States, or any portion thereof, when he shall determine that such quarantine is necessary to prevent the spread of a dangerous plant disease or insect infestation," in other words, without the requirement of the determination of the actual infestation of such area as a whole. These broader powers were desired by the Board to be exercised in cases of diseases or infestations the actual spread of which cannot be accurately determined, as that of the white pine blister rust or the citrus canker.

Another modification of this section authorized the Secretary of Agriculture, " when the public interests will permit," to quarantine and regulate the movement, in addition to plants and plant products, of " any class of stone or quarry products or any other article of any character whatsoever capable of carrying any dangerous plant disease or insect infestation specified in the notice of quarantine."

Prior to this amendment, it was mandatory on the Secretary of Agriculture to make and promulgate rules and regulations which would permit interstate movement of quarantined articles. The insertion of the phrase, " the public interests," makes it possible to prohibit such movement.

A third amendment, relating to the District of Columbia, was made in an appropriation act of May 31, 1920 (41 Stat. L., 694, 726). This amendment is in the form of an additional section (Section 15) which gives the Secretary of Agriculture authority to regulate the movement of plants and plant products, including nursery stock, from or into the District of Columbia and to control injurious plant diseases and insect pests within the District. These are the same kinds of powers that are exercised by the state and territorial authorities practically throughout the United States, and were necessary for the alignment of the District of Columbia with the plant-pest control exercised elsewhere.

A fourth amendment was necessitated by a decision of the United States Supreme Court,[10] on March 1, 1926, which ruled that with the federal plant quarantine act in force, "State action is illegal and unwarranted when applying to interstate movement," a ruling which invalidated upward of two hundred state quarantines and made it impossible for any state to take protective action with respect to any plant pest involving movement from other states or foreign countries. This construction of the law entailed consequences that were not sought either by the states or by the national Department of Agriculture. It placed a burden upon the latter much greater than it could assume, necessitating, if the same type of protection was to be continued, national enforcement of hundreds of quarantines which had been enforced by the states, in many of which the need for quarantine was local, and local administrative machinery was better suited for enforcement.

As soon as this decision was made, steps were taken by the Department of Agriculture and by state authorities and others to remedy this condition, with the result that a joint resolution was approved April 13, 1926 (44 Stat. L., 250), amending Section 8 of the Plant Quarantine Act by giving the power to the several states to quarantine against the shipment therein or through them of plants, plant products, and other articles found to be diseased or insect-infested when not covered by a quarantine established by the Secretary of Agriculture. This amendment provides that: " nothing in this [Plant Quarantine] Act shall be construed to prevent any State, Territory, Insular Possession, or District, from promulgating, enacting, and enforcing any quarantine, prohibiting or restricting the transportation of any class of nursery stock, plant, fruit, seed, or other product or article subject to the restrictions of this section, into or through such State, Territory, District or portion thereof, from any other State, Territory, District or portion thereof, when it shall be found, by the State, Territory, or District promulgating or enacting the same, that such dangerous plant disease or insect infestation exists in such other State, Territory, District or portion thereof."

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[10] Oregon-Washington Railroad and Navigation Company v. the State of Washington.

It also authorizes the Secretary of Agriculture to coöperate with any state, territory, or district in the enforcement of any such quarantines, and gives authority for any state to exercise its police powers with respect to any articles shipped in violation of a federal plant quarantine.

These provisions greatly strengthened the coöperation of the federal and state authorities in their plant quarantine activities.

The fifth and last amendment to the Plant Quarantine Act was made in the act of May 1, 1928 (45 Stat. L., 468), which added a paragraph to Section 10, granting authority, theretofore lacking, to stop and without warrant, to inspect, search, and examine persons, vehicles, receptacles, boats, ships, or vessels, and to seize and destroy or otherwise dispose of plants and plant products or other articles found to be moving or to have moved in interstate commerce or to have been brought into the United States in violation of the act of 1912 or of any quarantine order thereunder. The need for such an amendment had been felt throughout the whole period of enforcement of the Plant Quarantine Act and had become especially imperative in connection with the enforcement of such domestic quarantines as those on account of the European corn borer, the Japanese beetle, the pink bollworm, and the white pine blister rust. The amendment was designed especially to prevent the carriage, interstate, of prohibited plant pests on articles picked up en route by motorists and other travelers, or purchased by them from farm roadside stalls; and to facilitate enforcement of foreign quarantines at ports of entry. Before the enactment of this provision it was impossible legally to stop the entry of contraband articles or to have them destroyed except through the coöperation of the Customs Service.

Other Plant Regulatory Acts. The earliest plant pest legislation enacted by Congress was the Insect Pest Act of March 3, 1905 (33 Stat. L., 1269), which is still in force. This act prohibits, under penalty of a heavy fine, the importation and the transportation, interstate, of live insects that are injurious to plants, and declares such insects to be non-mailable matter. Exception is made in the case of such insects when used for scientific purposes, but these can only be transported under regulations made by the Secretary of Agriculture and approved by the Postmaster General. The act does not interfere with the importation or interstate transportation of insect-infested or disease-infected plants. Its enforcement was originally entrusted to the Bureau of Entomology in coöperation with the Post Office Department. This function of the Bureau of Entomology is now exercised by the Plant Quarantine and Control Administration.

The original draft of this bill was forwarded to Representative Lovering by the Secretary of Agriculture on January 5, 1905, and was introduced by Mr. Lovering on February 4, 1905. As originally drafted the bill prohibited only the interstate transportation of injurious insects and pests, but a Senate amendment which was concurred in by the House made this act applicable to movement of insects and pests from foreign countries. This act is still very important as it gives authority to control the entry of possibly injurious insects irrespective of carrying media.

An agricultural appropriation act of March 4, 1915 (38 Stat. L., 1113), made provision, under certain conditions, for terminal inspection by state authorities of plants and plant products transmitted interstate through the mails. Until then, while a state could protect itself by quarantining against plants and plant products of other states so far as shipments by freight or express were concerned, they had no authority to interfere with shipments sent by parcel post. The purpose therefore of this Post Office act was to permit the states to safeguard themselves against entry of insect-infested or diseased plants or plant products through the mails. Any state desiring to take advantage of this legislation must establish and maintain a terminal inspection service of plants and plant products at one or more places in the state. The proper state officers must submit to the Secretary of Agriculture a list of plants and plant products and the plant pests transmitted thereby, which in their opinion should be subject to terminal inspection in order to prevent the introduction and dissemination in their state of pests injurious to agriculture. Upon his approval of this list, in whole or in part, the Secretary of Agriculture transmits the list as approved to the Postmaster General, and thereafter all packages containing any plants or plant products named in the approved list, upon payment of postage therefor, are forwarded by the postmaster at the destination of the package to the proper state officer for inspection. If the plant or plant products are found upon inspection by the state authority to be free from injurious pests or, if infected, are disinfected by that officer, they are returned to the postmaster at the place of inspection to be forwarded to the person to whom they are addressed. If found to be infected with injurious pests and incapable of satisfactory disinfection, the state inspector notifies the postmaster at the place of inspection, who promptly notifies the sender of the plants or plant products that they will be returned to him upon his request and at his expense, or in default of such request that they will be turned over to the state authorities for destruction. The act requires all such packages to be plainly marked so that their contents may be readily ascertained by an inspection of the outside, a fine of one hundred dollars being provided for failure to so mark such a package. Rules and regulations for carrying out the purposes of this act have been prescribed by the Postmaster General. The national government pays none of the expenses arising under this act.

Acceptance of the advantages of this act is optional with each state. California, which was particularly active in securing the enactment of this law, was the first state to take advantage of its provisions. It was followed successively by Arizona, Montana, Florida, Washington, Arkansas, Mississippi, Utah, Oregon, Georgia, Idaho, Oklahoma, and Wyoming, the District of Columbia, and Hawaii. Plants and plant products shipped to the states are exempt from such inspection if under certification of the Plant Quarantine and Control Administration.

On October 6, 1917, in an urgent deficiency appropriation act (40 Stat. L., 374), the Secretary of Agriculture was authorized to make surveys to determine the actual distribution in Mexico of the pink bollworm; "to establish, in coöperation with the states concerned, a zone or zones free from cotton culture on or near the border of any state or states adjacent to Mexico; and to coöperate with the Mexican government or local Mexican authorities in the extermination of local infestations near the border of the United States." While the object of this provision was the prevention of further entry of the pink bollworm from Mexico, it became a means of better enforcement of restrictions on account of other plant pests, and in that way became a very material aid and enlargement of the powers granted in the Plant Quarantine Act. An initial appropriation of $250,000, available October 6, 1917, was made, and a year later an appropriation of $500,000 was made in an appropriation act for the fiscal year 1919. Varying amounts have been specifically appropriated each succeeding year on account of this insect. The work was originally entrusted to the Federal Horticultural Board and is now done by the Plant Quarantine and Control Administration.

An appropriation act of May 11, 1926 (44 Stat. L., 536), granted authority to the Department of Agriculture "to inspect, under such rules and regulations as the Secretary of Agriculture may prescribe, domestic fresh fruits, vegetables, and seeds, and nursery stock and other plants for propagation, when offered for export, and to certify to shippers and interested parties as to the freedom of such products from injurious plant diseases and insect pests according to the sanitary requirements of foreign countries, and to make such reasonable charges and to use such means as may be necessary to accomplish this object." An initial appropriation of $10,000 was made, but the service was intended to be self-supporting. This legislation was necessitated by the requirements of certain foreign countries of inspection and certification as a basis of exportation to such countries. This requirement is the counterpart of that which is made under our federal act with respect to foreign certification of nursery stock. This inspection service was originally entrusted to the Federal Horticultural Board, and is now performed by the Plant Quarantine and Control Administration.

In addition to the regular appropriations made for the maintenance of the Federal Horticultural Board, special appropriations were made by Congress from time to time for the control or extermination of newly established important plant pests.

Federal Horticultural Board, 1912 to 1928. The duties of the Federal Horticultural Board under the act, as originally defined in the annual report of the Secretary of Agriculture for 1912, were: "to prevent the importation of nursery stock into the United States except under such circumstances as to insure its freedom from plant diseases and insect pests; to prevent the transportation in interstate commerce of imported nursery stock except under prescribed regulations to prevent the spread of plant diseases and insect pests; to prevent the importation of any plants, fruits, vegetables, roots, bulbs, seeds, and other plant products not included in the term 'nursery stock,' when such importations would introduce a plant disease or an insect pest."

This work was to be carried on with the coöperation of the Bureaus of Entomology and Plant Industry, the Forest Service, the State, Treasury, and Post Office Departments and with the horticultural inspectors of the several states, all of whom acted as agents of the Board in matters of plant quarantine under the act of 1912. The Bureaus of Entomology and Plant Industry were brought into the actual service of field administration of these quarantines and aided in their enforcement, at first as a necessity, the Board not having obtained the funds or personnel to take care of such work.

Administration. In accordance with the requirements of the Plant Quarantine Act the Secretary of Agriculture in 1912 appointed the following members to constitute the Federal Horticultural Board: Dr. C. L. Marlatt and A. F. Burgess, of the Bureau of Entomology; W. A. Orton and Peter Bisset, of the Bureau of Plant Industry; and George B. Sudworth, of the Forest Service. Dr. Marlatt remained the chairman of the Board during the entire period of its existence, that is, until June 30, 1928, when he was appointed Chief of the Plant Quarantine and Control Administration, which organization superseded the Board.

The administration of the Insect Pest Act of 1905, which had been entrusted to the Bureau of Entomology in coöperation with the Post Office Department, was transferred to the Federal Horticultural Board upon its creation and is now in the hands of the Plant Quarantine and Control Administration.

The first administrative act of the Federal Horticultural Board after its organization was the preparation, in coöperation with the Solicitor for the Department of Agriculture, of rules and regulations for carrying out the provisions of the Plant Quarantine Act. These were published on September 25, 1912, as "Circular No. 41, Office of the Secretary." Two revisions of this publication were issued soon thereafter, one on December 20, 1912, and the other as "Circular No. 44, Office of the Secretary," issued May 26, 1913, effective on and after July 1, 1913. Rules and regulations were also issued on May 31, 1913, for the importation of nursery stock by the United States Department of Agriculture for experimental or scientific purposes. During the first fiscal year, twenty-one other circulars and circular letters were issued to meet the special needs of the Board in the exercise of its functions. Others have been issued from time to time.

The work of the Federal Horticultural Board during the first year of its enforcement of the Federal Plant Quarantine Act was carried on under four heads: (1) Nursery stock importations; (2) foreign plant quarantines; (3) domestic plant quarantines; and (4) investigation of foreign insect or disease enemies of plants as a basis for possible quarantine action.

At the time of its organization, the functions exercised by the Board in relation to the importation of nursery stock related to: (1) The issuance of permits for the importation of nursery stock; (2) the provision of foreign inspection and certification as a condition of entry; and (3) the distribution to the several state inspectors of exact information in regard to the origin, arrival, and destination of the imported stock.

The last mentioned function was necessitated by the fact that the inspection of imported stock at the destination, instead of at the port of entry, was desired by the importing nurserymen and could usually be more conveniently done by state inspectors when available. In 1912, three states had no facilities for making such inspections and several others had inadequate facilities. The states which were receiving the great mass of the imported stock, however, had the best inspection services.

Soon after the organization of the Board, the work of distributing notifications to state inspectors was begun, and nearly all the states made fairly adequate provisions for inspection and reported results on forms furnished for that purpose by the Board.

From the beginning, however, there was federal inspection of imported plants. The act permits plant importations upon the issuance of a permit by the Secretary of Agriculture " under such conditions and regulations as the Secretary of Agriculture may prescribe." This broad language has been interpreted as giving the Secretary of Agriculture a right to inspect or perform any other function necessary to safeguard the entry of plants.

Since the very large reduction of purely commercial importations of plants, due to the promulgation of Quarantine No. 37, in 1918, practically all entries come under federal inspection. Commercial entries are, where possible, still taken care of by state officers at destination, but all such entries are given a certain type of preliminary inspection at ports of entry by federal inspectors. Wherever the state cannot function, federal inspection is substituted.

Commercial importations under the act were only permitted if coming from a country having an official inspection and certification system. In 1913 fifteen foreign countries were recognized as having provided for inspection and certification of export plants and plant products in conformity with the regulations under the Plant Quarantine Act. These were Holland, Belgium, France, Germany, Denmark, England, Scotland, Ireland, Japan, Canada, Guatemala, Trinidad, Cuba, Luxemburg, and Bermuda. They include most of the countries which at the time had been maintaining commercial trade in nursery stock with the United States.

Nursery stock from other countries not so recognized was limited by regulation and could only be imported for experimental or scientific purposes.

Commercial importations of nursery stock to the District of Columbia, during the first year of the enforcement of the Act, were inspected by experts from the Bureaus of Entomology and Plant Industry. Nursery stock entering Porto Rico and the Hawaiian Islands was inspected for the Board by inspectors of the local governments, who were appointed collaborators of the Department of Agriculture for the purpose.

The federal inspection service required by the Plant Quarantine Act, that is, the inspection of nursery stock from countries having no official system of inspection, and the inspection necessitated by domestic and foreign quarantines promulgated under the act, were originally assigned to two principal inspectors, one transferred from the Bureau of Entomology and the other from the Bureau of Plant Industry. These two inspectors were also required to act in an advisory capacity in relation to the examination by state inspectors of nursery stock imported from countries maintaining inspection services.

The requirements of the act in relation to uncertified imported nursery stock and the special enforcement of foreign and insular domestic quarantines were liable to call for inspection at almost any port of entry in the United States. To meet these requirements, the state inspection services were utilized to some extent, the state officers having been given a federal status by their appointment as collaborators of the Department of Agriculture at nominal salaries. During the first year of operation of the Board, seventy-two such appointments were made at salaries ranging from one to twenty-five dollars per month.

During the same year, two temporary agents were employed to carry on inspection and investigational work in connection with the establishment of the Mexican quarantine and as a means of determining the need of quarantine against certain fruits from Mediterranean countries. Field examinations and investigations in connection with some domestic quarantines, begun this year, were carried on in coöperation with the Bureaus of Entomology and Plant Industry by special expert agents detailed from these bureaus.

The provisions of the act of 1912 necessitated coöperation with several other government establishments. The requirement of Section 2, that the Secretary of the Treasury promptly notify the Secretary of Agriculture of the arrival of any nursery stock at ports of entry, involved a very considerable addition to the duties of customs officers whose active coöperation with the Horticultural Board became essential.

The coöperation of foreign governments in facilitating the enforcement of the Plant Quarantine Act by doing better inspection work and providing suitable legislation and officers to meet the requirements of the act, was secured through the State Department.

While originally there was no provision in the Plant Quarantine Act concerning the coöperation of the Post Office Department, that department at the request of the Department of Agriculture, from the beginning has assisted the Board in its enforcement of the prohibition of importation of nursery stock.

While in the first year of administration of the Plant Quarantine Act there was necessarily some misunderstanding and some confusion incident to the installation of federal control of the importation of nursery stock from foreign countries, the importers in the main endeavored to comply with the law and to meet all its conditions, and this feature of the work, even in the first year, was successful and secured a large measure of protection without placing serious restrictions or heavy burdens on the nursery trade.

During the second year of the Board's existence, a Secretary of the Board was appointed. As the great bulk of the nursery stock and other plant importations entered through the port of New York, a permanent inspector was placed at this port in that year. His duties related particularly to the inspection of plant importations from countries having no inspection service and the inspection of potatoes and avocados offered for entry under regulations requiring inspection.

During the fiscal year 1916 cotton was added to the products requiring inspection; a cotton importations section was created in the administrative office of the Board, and a permanent inspection force was placed at Boston, where the bulk of the cotton enters. The inspection work at New York, Newark, and San Francisco, California, was increased.

With the growth of work of the Board the inspection force was gradually enlarged, so that at the close of the fifth fiscal year, 1917, the Board maintained at the ports of entry of New York, Newark, Boston, Seattle, San Francisco, Calexico, and all of the border ports between Mexico and Texas, an inspection service to enforce the inspection and other requirements of entry of plants and plant products admitted into the United States under regulation. The force of inspectors at these ports consisted in part of regular employees of the government and in part of state inspectors collaborating with the Federal Horticultural Board. The Texas-Mexico border service had particular relation to the prevention of the entry of the pink bollworm. In 1917, there were sixty-eight state inspectors coöperating with the Board.

The Board in 1917 published a catalogue of the more dangerous insect enemies of plants in foreign countries which for the most part had not yet gained entry into the United States. This catalogue was issued as a handbook for the information of the national and state plant quarantine inspectors. In it are listed some three thousand different foreign insect pests. These include insects injurious to forest and shade trees, to fruit and ornamental trees and to the various farm and garden crops.

A similar manual, which was published in 1926, lists the known foreign plant diseases and describes and catalogues nearly as many diseases as there are insects listed in the insect-pest catalogue.

These catalogues and lists enumerate only the known plant enemies. Most of the recent introductions from foreign lands of important pests have been insects and diseases of which literature and available records gave us no warning.

The enactment of the amendment of May 31, 1920, to the Plant Quarantine Act of 1912 giving the Secretary of Agriculture authority to regulate the movement of plants and plant products from or into the District of Columbia and to control plant diseases and insect pests within the District, gave the Federal Horticultural Board the same kind of control of plants and plant pests for the District of Columbia as is exercised by the state authorities in the different states.

The activities of the Federal Horticultural Board, the Bureau of Entomology, the Bureau of Plant Industry, and the state authorities in the matter of federal and state plant quarantine and control, have been greatly facilitated by the creation of organizations among the entomologists, plant pathologists, and others, for the purpose of bringing them closer together for consultation and coöperative effort in this field.

The oldest and largest of these organizations is the American Association of Economic Entomologists, organized in Washington, in 1889, and incorporated December 29, 1913, which has a present membership of about one thousand scientists who meet annually to discuss matters pertaining to the entire field of economic entomology. A Section of Plant Quarantine and Inspection gives special attention to plant regulation. Since 1907 the Association has issued a bi-monthly "Journal of Economic Entomology."

At a meeting of the American Association of Economic Entomologists in January, 1925, and as a result of the several years' activities of the Section of Plant Quarantine and Inspection, propositions were adopted for the creation of: (1) A board of nationwide composition for reviewing and passing on state quarantines affecting the interstate movement of nursery stock; (2) regional boards for correlation of quarantines and inspection activities; and (3) standardization, as far as possible, of regulations.

A Western Plant Quarantine Board was already in existence, having been created in May, 1919; a Central Plant Board was organized in March, 1925; in the same year the Middle Atlantic and Northeastern States Plant Conference Board was organized; and in February, 1926, a Southern Plant Board was organized.

On June 25, 1926, two representatives from each of these four regional boards met and perfected a permanent organization which was named the National Plant Board. While this Board has no authority or legal status, it represents the state inspection departments of all the states and thus constitutes an active agency to represent them and to carry out their wishes. It has considerable weight in matters of policy with reference to both domestic and foreign quarantines, and serves as a clearing house for the various state officers and as a correlating agency between the states and the Plant Quarantine and Control Administration. The national government is not represented on the Board. The National Plant Board, in coöperation with the Department of Agriculture, is endeavoring also to carry out the third proposition adopted in 1925, that of " standardization, as far as possible, of regulations."

The most effective weapon against the introduction of plant pests into a country or locality is the quarantine. Under the act of 1912 the Secretary of Agriculture has authority to exercise the quarantine not only against the importation of plants and other potential pest-carrying objects from foreign countries, but he " is authorized and directed to quarantine any state, territory, or district of the United States, or any portion thereof, when he shall determine that such quarantine is necessary to prevent the spread of a dangerous plant disease or insect infestation, new to or not theretofore widely prevalent or distributed within and throughout the United States."

The quarantine restrictions and the regulations imposed under the act of 1912 did not represent the judgment of the Horticultural Board alone. The suggestion for a plant quarantine, under the Federal Horticultural Board as well as under the present Administration, may properly come from any office of the Department in interest or from any outside source, state or individual. The procedure on any proposed quarantine subject varies somewhat with the importance of the subject. In the case of a quarantine like No. 37, involving large interests at home and abroad, elaborate provision for conference and discussion is made. In a quarantine proposal of less importance, the minimum requirements of the act are observed, namely, the issuance of a notice of hearing and the hearing itself. In every case there is necessarily some discussion in the Department prior to the issuance of the " notice of hearing," and the Secretary must be convinced that the subject is one warranting a hearing. Following the hearing, the quarantine, and the regulations thereunder which are submitted must receive the approval of the Secretary.

Until the establishment of the Plant Quarantine and Control Administration on July 1, 1928, the work of enforcement of the restrictions on the entry of plants and plant products under the various foreign quarantines which were promulgated by the Department of Agriculture, was performed by the Federal Horticultural Board, inspectors and collaborators of this Board being stationed at the more important ports of entry. In this work the Board had the active coöperation of the Customs Service of the Treasury Department, of the Post Office and State Departments, and of the several states.

At the time of the reorganization resulting in the creation of the Plant Quarantine and Control Administration, the work of enforcement of foreign plant quarantines and regulatory orders at maritime, interior, and Mexican border ports of entry involved: (1) The inspection of vessels arriving at ports of entry from foreign ports and from Porto Rico and Hawaii; (2) the inspection and disposition of all plants and plant products under restriction found in passengers' baggage by the United States customs officers coöperating with the Board; (3) the inspection of all plants and plant products, including nursery stock, seeds, bulbs, fruits, and vegetables entered under permit from all foreign countries and localities, and certain products arriving from domestic territory; (4) disinfection (fumigation or sterilization) of cotton and broom-corn and other products requiring such treatment as a condition of entry; (5) inspection in coöperation with customs and post-office officers of restricted plants and plant products arriving by foreign parcel post; (6) inspection of plants and plant products introduced by the Department of Agriculture and all plants imported under special permit in accordance with the provisions of Quarantine 37, regulation 14; (7) inspection of domestic plants entering and leaving the District of Columbia; (8) inspection of plant-introduction gardens of the Bureau of Plant Industry; and (9) inspection of fruits and vegetables at the point of shipment in Porto Rico and Hawaii in accordance with the provisions of Quarantines 58 and 13 respectively.

At the same time the Federal Horticultural Board directed the enforcement of twenty plant quarantines concerning interstate movement and movement between Porto Rico and Hawaii and the mainland. The Hawaiian and Porto Rican quarantines, while domestic, entail methods of enforcement like foreign quarantines and are therefore administered like the latter.

The domestic quarantines on account of the Mediterranean fruit fly and melon fly in Hawaii and on the mainland, and the quarantines on account of the Japanese beetle, the European corn borer, the gipsy and brown-tail moths, and the Mexican fruit worm were enforced by the Board with the coöperation of the Bureau of Entomology before July 1, 1928, and those on account of the white pine blister rust and the black stem rust of small grains with the coöperation of the Bureau of Plant Industry. Since that date, however, all plant quarantines have been enforced by the Plant Quarantine and Control Administration. During the period from 1912 to June 30, 1928, sixty-four numbered quarantines were promulgated. In some cases one quarantine was succeeded by another, the latter taking a new number, and in two cases quarantines had been lifted. At the end of this period there were altogether forty quarantines in force, twenty of which were domestic and twenty were foreign. In addition to the national quarantines, numerous quarantines relating to intrastate and interstate movements of plants and plant products have been declared by the several states under state laws.

Following is a brief sketch of each of the federal quarantines that have been promulgated to June 30, 1928, under the act of 1912, and the circumstances under which the notices were issued.

Restriction of Nursery-Stock Importations. Few if any acts of the Department of Agriculture have aroused so much discussion and so much adverse criticism and condemnation on the one hand and commendation on the other as the promulgation by the Secretary of Agriculture on November 18, 1918, effective June 1, 1919, of "Nursery stock, plant, and seed quarantine No. 37," the purpose of which is "to reduce to the utmost the risk of introducing dangerous plant pests with plant importations."

As the efforts to enact plant quarantine legislation prior to 1912 were bitterly fought by interests deriving benefit from plant importations in so far as such measures aimed to restrict such importations, so the promulgation of this quarantine aroused nationwide criticisms and protests on the part of many of those affected by the new restrictions which this order placed upon the importation of nursery stock, plants, and seeds.

Quarantine No. 37 was promulgated " in order to prevent the further introduction into the United States of injurious insect pests and fungous diseases." As originally issued it forbade, except as provided in the rules and regulations supplemental thereto, the importation into the United States of nursery stock and other plants and seeds from the foreign countries and localities named [Europe, Asia, Africa, Mexico, and Central and South America] and from any other foreign locality or country. The original order provided that the quarantine should not apply to nursery stock and other plants and seeds covered by special quarantines and other restrictive orders then in force, nor to the importation by the United States Department of Agriculture of nursery stock and other plants and seeds for experimental or scientific purposes.

The history of this proclamation goes back to the beginning of the efforts of the newly created Federal Horticultural Board in 1912 to deal with the problem of preventing the importation on nursery stock of injurious insects and plant diseases.

The provisions of the Plant Quarantine Act of 1912 became effective as to nursery stock importations on October 1, 1912. Until the promulgation of Quarantine No. 37, the quarantine orders were always directed against specific plants and other potential carriers of injurious insects or plant diseases, and the importation of nursery stock, except where individual plants were so specified, was permitted under certain restrictions specified in the act and in the rules and regulations prescribed by the Department of Agriculture.

For the purpose of such importation, nursery stock was divided into two classes: (1) That coming from countries having an official inspection and certification system; and (2) that coming from countries which had no system of inspection or certification. Commercial importations were permitted from countries of the first category; but from those of the second category, importations were limited by regulation and were permitted only for experimental or scientific purposes.

With regard to the first category, the Federal Horticultural Board, under the act of 1912, had power to issue permits for the importation of nursery stock; to provide for foreign inspection and certification as a condition of entry; and to distribute to the several state inspectors exact information in regard to the origin, arrival, and destination of the imported stock.

The Federal Horticultural Board was given authority, by regulation, to cancel permits and to refuse further permits for the importation of nursery stock from any given country, if it found such stock so infested as to indicate plainly that the foreign inspection maintained by the country was merely perfunctory.

Examinations of importations of the second category, that is, from countries which had no system of inspection or certification or in which such inspection or certification was merely perfunctory, under the provisions of the law, were made at ports of entry by inspectors of the Department of Agriculture as a condition of entry and delivery to the importers. These, being limited to nursery stock to be used for experimental purposes, were comparatively infrequent and usually of small amount.

The conditions governing importations from countries of these two classes were originally detailed in "Circular No. 41, Office of the Secretary," published September 25, 1912, giving the rules and regulations for carrying out the Plant Quarantine Act. These rules and regulations have been amended and revised from time to time.

While, in general, importers of nursery stock have endeavored to comply with the law and to meet the requirements of the Department of Agriculture, the control of plant and insect-pest importations was not sufficiently effective in the opinions of many entomologists and plant pathologists, and after a few years of enforcement of the Quarantine Act, consideration was given to the need of more effective restrictions or prohibitions.

It was found that large risks were involved from these importations, particularly in the case of plants with earth about the roots, or " balled plants," and plants and seeds of all kinds for propagation from little-known or little-explored countries, the inspection and disinfection of which as a condition of entry constituted an imperfect safeguard against the introduction of plant diseases and insect pests.

Numerous requests for greater restrictions on plant imports came from official bodies representing the state departments of agriculture, state inspection officers, entomological and phytopathological organizations, forestry associations, and others. As a result of this apparent need, a public hearing was conducted at the Department of Agriculture, May 28, 1918, at which this subject of greater restriction was discussed by all of the interests concerned, the participants including representatives of the above as well as of producing and importing nurserymen and seedsmen.

Following the hearing the subject was further studied by experts of the Bureau of Plant Industry, including a field examination of the conditions throughout the country, to determine the essential needs as to future plant importations.

As a result of these hearings and studies, a tentative plant quarantine order was prepared and transmitted on August 29, 1918, to plant trade journals and related societies and to interested individuals, with the request that the proposed quarantine be given careful consideration with a view to a conference later to discuss and determine the desirability of the proposed restrictions. This conference was held October 18, 1918, and the tentative quarantine was amended in minor detail and promulgated as Quarantine No. 37, on November 18, 1918, to take effect June 1, 1919. Quarantine No. 37 superseded the regulations theretofore in force governing the importation of nursery stock and brought under restriction all other plants and plant products for or capable of propagation, except that those intended for medicinal, food, or manufacturing purposes, and field, vegetable, and flower seeds were allowed entry without permit or other restriction. It did not affect the status of nursery stock and other plants and seeds covered by special quarantines and other restrictive orders in force.

The quarantine allowed importation under permit and on compliance with the requirements of regulations, of certain bulbs, rose stocks, and fruit stocks, including cuttings, scions, and buds, and seeds of nut, fruit, forest, and ornamental and shade trees and of hardy perennial ornamental shrubs. It provided for the importation, under special permits from the Secretary of Agriculture, of limited quantities of otherwise prohibited stock for the purpose of keeping the country supplied with new varieties of plants and stock for propagation purposes, not available in the United States.

The new regulations governing the entry of the classes of plants permitted under Quarantine No. 37 were similar to those theretofore in force with respect to nursery stock, and likewise took into account the classification of countries into: (1) Those maintaining inspection and certification of nursery stock in accordance with the requirements of the plant quarantine act; and (2) countries which had made no provision for such compliance.

With regard to the purpose of Quarantine No. 37, Dr. Charles L. Marlatt, then Chairman of the Federal Horticultural Board, said in 1925:[11]

> Quarantine 37 restricts the entry of most nursery stock and other ornamentals to certain purposes which are believed to be necessary to the development of American horticulture. Unlimited entry is permitted of certain classes of plants, and provision is made for the entry of any other plant whatsoever for which a reasonable need can be shown, either for introduction of new varieties or for propagating stock not available in the United

[11] Plants and plant pests, *Atlantic Monthly*, June, 1925, pp. 775-85.

States, or for any experimental, educational, or scientific purpose. Briefly, these provisions are as follows:

1. Under Regulation 2 of the quarantine unlimited entry is possible, without permit or other restriction, of field, vegetable, and flower seeds, and of plant products imported for medicinal, food, or manufacturing purposes.
2. Regulation 3 provides for the unlimited entry, under permit and with provision for inspection, and, if necessary, disinfection, of certain important classes of plants and plant products which cannot at present be adequately produced in the United States.
3. Regulation 14 makes provision for the entry, under special permit, of any plant, or seed not included under Regulations 2, 3, and 15 for the purpose of keeping the country supplied with new varieties and necessary propagating stock, or for any necessary experimental, educational, or scientific purpose.
4. Regulation 15 recognizes the intimate trade-relations between the United States and Canada and Mexico and provides, under permit and necessary safeguards, for the importation of plants the entry of which from other foreign countries is restricted.
5. The only exceptions to the entry of plants thus provided for are those involved under specific quarantines as, for example, the prohibition of entry of five-leafed pines, *Ribes* and *Grossularia* from certain countries, on account of the white-pine blister-rust, and generally of citrus, bamboo, banana plants, and so forth, on account of specific diseases and pests; but any of these prohibited plants may be imported, under permit and adequate safeguards, through the U. S. Department of Agriculture, for any necessary experimental, scientific, or introduction purpose.

Although the plants imported under Regulation 14 amounted to about one per cent only of those imported under Regulation 3, they represent a far greater amount of care, study, and interpretation of the regulations.

Quarantine No. 37, as already mentioned, aroused wide criticism and protest. Objections were made in newspapers and periodicals throughout the country in editorials, letters, and contributed articles. An editor of a leading magazine,[12] enumerated the following organizations as being solidly opposed to this quarantine: American Association of Nurserymen; Society of American Florists; nurserymen's associations of New England, Ohio, Pennsylvania, New York, and New Jersey; Minnesota Horticultural Society; a majority of florists' clubs; and members of the American Peony Society, the American Rose Society, the Horticultural Society, and practically all the associations of florists and nurserymen and workers concerned with ornamental plants.

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[12] *Garden Magazine,* April, 1919, p. 109.

The Federal Horticultural Board immediately took cognizance of these objections and issued several explanatory memoranda and statements in answer to various criticisms and to correct certain alleged misrepresentations. The most important of these was a memorandum dated February 1, 1919, giving a general discussion of the quarantine and the conditions which led to its promulgation. After a conference with a joint committee representing the New York Florists Club, the Society of American Florists, and the American Association of Nurserymen on March 1, 1919, the Secretary of Agriculture issued an explanatory statement, dated March 28, 1919, based on an investigation which he had made of the whole subject, the report of which supported the quarantine. These two documents were published at that time in various trade journals and were liberally used by the Federal Horticultural Board in correspondence with respect to the quarantine.

The Chairman of the Federal Horticultural Board, Dr. Marlatt, during that year, attended, on invitation, annual meetings of associations of nurserymen and florists to discuss the federal plant quarantines and particularly Quarantine 37. These meetings included the Pacific Coast Association of Nurserymen and Ornamental Horticulturists, at Riverside, in May; the National Association of Nurserymen, in Chicago, in July; and the Society of Florists and Ornamental Horticulturists, in Detroit, in August. The discussions at these meetings were designed to bring about a better understanding of the fundamental principles underlying this quarantine.

The objections and criticisms made by opponents of Quarantine 37 have been summarized in the following words from the article by Dr. Marlatt, above cited.

Persons have been led to believe, with respect to this quarantine [37]:

> 1. That its alleged protective purpose—that is, to exclude plant pests—is a subterfuge, the real object being trade-protection.
> 2. That it is now a practical embargo on entry of plants and will ultimately place a permanent check on the development of American horticulture.
> 3. That the restrictions are not justified by the dangers of new pests and that any risks which actually exist can be adequately safeguarded by inspection and certification in countries of origin.
> 4. That it was dictated and is being autocratically administered by a few men and that it oversteps the quarantine powers authorized in the Plant Quarantine Act.
> 5. That it was promulgated without warning and that a few insiders were thus able to get an advantage.
> 6. That it is very likely to lead to retaliation on the part of other countries.

In answer to these objections Dr. Marlatt said, with regard to the first charge:

> Quarantine 37 has but one purpose, namely to reduce to the utmost the risk of introducing dangerous plant pests with plant-importations. This purpose is the basis of all the regulations restricting entry of foreign plants. Quarantine 37 has no tariff object whatsoever. It was not devised to protect plant-growers from foreign competition. The absence of any thought of such protection, on the part either of this Department or of state officials, or of others advocating the quarantine, is indicated by the fact that the first and strongest wave of opposition to it was from commercial plant-propagators—nurserymen and florists—interests which are now [1925] almost equally unanimous in its support.

With regard to the second charge he said:

That Plant Quarantine 37 is in no true sense an embargo should be apparent from any unbiased examination of the continuing provisions under it for the entry of any necessary plants.

In answer to the third claim that the restrictions are not justified by new pests and that existing risk can be adequately safeguarded by inspection and certification in countries of origin, he said:

In point of fact, such means of safeguarding entry was the first thought of the Department following the promulgation of the Plant Quarantine Act of 1912, and as rapidly as possible the principal countries—some thirty-two eventually—concerned in any important way in the exportation of plants to the United States were induced to provide by legislation for such inspection and certification. A practical test of this method was continued for the first seven years of the enforcement of the Plant Quarantine Act during which unlimited importation of plants was permitted and the effort was made to prevent the entry of new pests by relying as safeguards on foreign inspection and certification and such additional reinspection at destination in this country as could be carried out by state inspectors—and such state coöperation was specifically provided for in the act.

Of the principal countries exporting plants to the United States, probably Holland and France developed as good an inspection service as any, if not the best. These countries certainly gave the subject their most serious thought and effort, and the status as to freedom from insects and diseases of their exports of plants probably represents the best work that can be expected under the plan of foreign inspection and certification. Notwithstanding these efforts, however, a great many injurious insects and plant diseases were found on stock imported from these countries between April 20, 1912, and June 1, 1919, the effective date of Quarantine 37. During this period of seven years no less than 148 different kinds of injurious insects were collected on nursery stock imported from Holland and 245 different kinds of insects on similar stock from France. Some of these were detected in over one thousand different shipments of plants and many of them were detected hundreds of times.

> While a large percentage of these were insect pests which had already become established in the United States, many others had not become so established and carried new and very serious elements of danger to our horticulture and agriculture. . . . There was also noted a very large variation in the yearly efficiency of this foreign service. In certain years, for example, fruit stocks, rose stocks, and other plants, in spite of this service, came in repeatedly and often heavily infested with such pests as the gipsy moth, the brown-tail moth, and other pests of importance in Europe not yet established anywhere in the United States. . . . Not only was the foreign inspection totally inadequate, but it developed also that the reinspection at destination in this country could by no means be depended upon to complete the safeguards against entry of pests. A few states were equipped with adequate authority and forces to examine imported stock at destination. . . . Other states, however, were not so equipped, and the volume and wide distribution of the material led to a great deal of it going uninspected or receiving such superficial examination as to give no real protection.
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> The inadequacy of the inspection and certification method of safeguarding the entry of foreign plants was plainly indicated in this seven-year trial, and the conclusion was forced that the only possible means of effectively lessening the introduction of new plant-enemies is in a policy of exclusion of all plants not absolutely essential to the horticultural and forestry needs of the United States.

In answer to the fourth assertion that Quarantine No. 37 was dictated and is being autocratically administered by a few men, and that it oversteps the quarantine powers authorized in the Plant Quarantine Act, Dr. Marlatt explained:

> The Federal Horticultural Board, as provided specifically in the Act, is merely advisory to the Secretary of Agriculture. Under the terms of the Act this board must be appointed by the Secretary of Agriculture from the three bureaus of the Department (Plant Industry, Forestry, and Entomology) having direct relation to the farm and forest resources of the nation from the standpoint both of production and of protection from losses due to insect pests or plant diseases; therefore in its advisory function to the Secretary it represents these three important bureaus. . . . To safeguard further the promulgation of plant

quarantines, the recommendations of the Board are based on public hearings, specifically provided for in the Act, and follow conferences with the Department specialists. Finally, before any proposed quarantine is promulgated it is reviewed and approved as to subject matter and need by the solicitors and the Director of Regulatory Work of the Department. Such actions represent, therefore, the judgment of the Department as a whole.

Regarding the fifth charge, that Quarantine No. 37 was promulgated without warning and that a few insiders were able to make importations in advance of this promulgation, he had this to say:

> Any importation made by any nurseryman prior to the effective date of the quarantine was merely a matter of the exercise of judgment and was based on no information that was not available to all.

Finally, with regard to the sixth statement, he said:

> The effort is being made in some quarters to indicate that the United States may expect retaliation on the part of other countries on account of these restrictions. In contrast, it is alleged or is left to be inferred that foreign countries permit our plants and fruits to enter freely. The facts are that the leading countries of continental Europe began prohibition of American plants in connection with the *Phylloxera* some half-century ago, and some twenty-five years later such prohibitions were made practically complete on account of the San Jose scale. For the most part these were real embargoes and not the regulation, restriction and safeguarding of entry which the United States in general enforces under its plant quarantines. Such embargoes were issued by Holland, France, Germany, Austria, and Switzerland. Other countries—Belgium, Italy, Spain, Turkey, and Russia—promulgated restrictions of lesser degree. Even Great Britain, Norway, and Sweden embargoed certain plants. Furthermore, our fruits and certain of our fruit products entered some of these countries—if they entered at all—under very burdensome restrictions. There were also restrictions from many countries against American potatoes. Most of these embargoes and restrictions still obtain [1925] and no one has questioned the right and desirability of thus protecting Eu-

rope's cultures. The United States was the laggard in such protective action and is paying the cost in upward of $1,000,000,000 annual loss from imported pests.

On May 15, 1922, a plant quarantine conference met at Washington, at the call of the Federal Horticultural Board, to afford an opportunity for a full discussion of the whole subject of Quarantine No. 37, and to bring about a better understanding of the need of safeguarding the country against the possible introduction of destructive insects and plant diseases. This conference was attended by representatives of the various trade associations and important horticultural organizations; by national, regional, and state horticultural, agricultural and quarantine officers; and by foreign delegates representing England, Holland, Belgium, and France.

At the conclusion of the conference provision was made by the Department of Agriculture to take up certain special subjects which needed more intimate discussion at some future time, including the questions of bulb importations and orchids and certain classes of florist and nursery stock.

Accordingly, a supplementary conference was held on October 30, 1922, to consider the subject of bulb importations. As a result the Secretary of Agriculture authorized, for a period not to exceed three years, beginning January 1, 1923, the addition of the following eight kinds of bulbs to the list of bulbs permitted under Regulation 3 of Quarantine 37: Glory-of-the-snow (*Chionodoxa*); snowdrop (*Galanthus*); squill (*Scilla*); crown imperial (*Fritillaria imperialis*); guinea-hen flower (*Fritillaria meleagris*); grape hyacinth (*Muscari*); ixia; winter aconite (*Eranthis*). Prior to this action six other bulbs had been permitted unlimited entry under Regulation 3, namely: Lily (*Lilium*); lily-of-the-valley (*Convallaria*); jonquil, daffodil, etc. (*Narcissus*); hyacinth (*Hyacinthus*); tulip(*Tulipa*); and crocus. Of the last mentioned group, the three-year limit in the case of the eight bulbs was also placed on the narcissus, which includes jonquils, daffodils, etc.

In view of the approach of the date of termination, of the unlimited entry of these nine bulbs (January 1, 1926), a new hearing was held November 16, 1925, at the call of the Department of Agriculture, at which this subject was reopened for discussion and decision.

As a result of the information brought out at this hearing, the Secretary of Agriculture held that the evidence had not disclosed a risk which would warrant exclusion at that time of the eight specified bulbs, and their continued entry was permitted.

In the case of narcissus bulbs, however, he prohibited the commercial importation for immediate sale or for forcing for cut flowers, but left open the provisions for entry under Regulation 14 for the purpose of keeping the country supplied with new varieties and necessary propagating stock, or for any necessary experimental, educational, or scientific purpose. The danger from the entry of bulbs for this purpose was further safeguarded by the requirement of disinfection either at the port of entry or at destination.

The object of these restrictions on the importation of narcissus bulbs and of the requirement of disinfection was a part of a program looking to the eradication, if possible, in the United States, of the more important bulb pests—pests which were of significance not only to bulbs but also to other cultivated crops. It appeared from the evidence presented that in almost every shipment of imported narcissus bulbs there were found to be such infestations of bulb pests as the narcissus or daffodil fly (*Merodon equestris*), the lesser bulb fly (*Eumerus strigatus*), the bulb mite (*Rhizoglyphus hyacinthi*), and the stem nematode (*Tylenchus dipsaci*), involving serious risk of infestation to our domestic bulb cultures and to other agricultural crops.

As in force at the present time, Quarantine No. 37, with regulations, as revised:[13]

Forbids, except as provided in the regulations supplemental thereto, the importation of nursery stock and other plants and seeds from all foreign countries and localities on account of certain injurious insects and fungous diseases. Under this quarantine the following plant products and seeds may be imported without restriction when free from sand, soil, or earth, unless covered by special quarantine or other restrictive orders: Plant products capable of propagation, imported for medicinal, food, or manufacturing purposes, and field, vegetable, and flower seeds. Cut flowers from the Dominion of Canada are also allowd entry without permit. The entry of the following nursery stock and other plants and seeds is permitted under permit:

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[13] Service and regulatory announcements, July-September, 1929, p. 168.

(1) Bulbs of the following genera: *Lilium* (lily), *Convallaria* (lily-of-the-valley), *Hyacinthus* (hyacinth), *Tulipa* (tulip), and crocus; and until further notice, *Chionodoxa* (glory-of-the-snow), *Galanthus* (snowdrop), *Scilla* (squill), *Fritillaria imperialis* (crown imperial), *Fritillaria meleagris* (guinea-hen flower), *Muscari* (grape hyacinth), ixia, and *Eranthis* (winter aconite).

(2) Stocks, cuttings, scions, and buds of fruits for propagation; except that stocks of apple, pear, quince, and mazzard cherry may not be imported under permit or otherwise after June 30, 1930; other fruit stocks, including mahaleb cherry and myrobalan plum, may not be imported under permit or otherwise after June 30, 1931.

(3) Rose stocks for propagation, including Manetti, Multiflora, Brier Rose, and *Rosa rugosa.*

(4) Nuts, including palm seeds, for propagation.

(5) Seeds of fruit, forest, ornamental, and shade trees, seeds of deciduous and evergreen ornamental shrubs, and seeds of hardy perennial plants; except that mango seeds may not be imported under permit or otherwise.

Importations of nursery stock and other plants and seeds specified in this regulation, from countries not maintaining inspection, may be made under permit upon compliance with these regulations in limited quantities for experimental purposes only, but this limitation does not apply to tree seeds.

Pink Bollworm Control. One of the major activities of the Federal Horticultural Board during almost its entire existence was the quarantine, control, and research work in connection with the pink bollworm of cotton (*Pectinophora gossypiella*), which is one of the most dangerous of the insect pests imported from abroad. This insect pest has occupied also much of the attention of the Bureau of Entomology. Control, being mainly a matter of inspection and quarantine, was left to be dealt with by the Board.

To guard against its entry into this country, Quarantine No. 8 was promulgated on May 28, 1913, effective July 1, 1913, which forbids the importation of cotton seed including seed cotton of all species and varieties and cotton-seed hulls from any foreign locality and country, excepting only the locality of the Imperial Valley in the State of Lower California in Mexico, importations from which may be entered under permit and regulation.

As injurious insects, including the pink bollworm, were found in importations of cotton lint, the Secretary of Agriculture, on April 27, 1915, issued an order effective July 1, 1915, under authority of Section 5 of the Plant Quarantine Act of 1912, that " cotton lint, baled or unbaled, imported or offered for import into the United States or any of its Territories or Districts from the foreign countries and localities named [Europe, Asia, Africa, South America, North American outside of the United States, and foreign oceanic countries and islands] and from any other foreign localities or countries, shall be subject to all the provisions of sections 1, 2, 3, and 4 of said act of Congress [Plant Quarantine Act of 1912]."

Regulations issued at this time provided for the entry at northern ports only of foreign cotton under permit and for a system of notification which enabled the Board to keep track of all imported cotton until it was consumed. No person, firm, or corporation was allowed by the Board to purchase, use, or store foreign cotton until a license therefor had been secured from the Secretary of Agriculture, and all licensees had to agree to comply fully with the requirements of the regulations, including the screening of all windows and other openings in the warehouses and opening and picker rooms, and the burning at the close of each day of all picker waste and seeds.

It was further provided by regulation that cotton arriving in this country on and after March 10, 1916, must be disinfected at ports of entry by fumigation under the supervision of an inspector of the Department of Agriculture, before its release.

All imported cotton was required to be entered under permit, and the ports of entry were confined to those where special plants for the disinfection of cotton were installed. This quarantine, like the others, is now enforced by the Plant Quarantine and Control Administration.

The pink bollworm was introduced into Mexico in 1911, through the importation of a considerable quantity of Egyptian cotton seed. The seed was first planted in the vicinity of Monterey, and the seed product of this crop, more or less infested with the pink bollworm, was planted in the important Laguna cotton district in northern central Mexico.

The existence of this pest in Mexico was first determined by the United States Department of Agriculture on November 1, 1916, as a result of the receipt of specimens of infested bolls from a planter in the Laguna district, and this discovery resulted in the issuance of an order by the Department of Agriculture on November 4, 1916, prohibiting the further entry into the United States from Mexico, with the exception of the abovementioned Imperial Valley, of all cotton seed, cotton-seed hulls, and seed cotton, and bringing under regulation and restriction, as to ports of entry, Mexican cotton lint of all kinds.

Unfortunately, before the existence of this pest in Mexico was known, the original quarantine of July 1, 1913, was amended (1913-14) as to certain northern Mexican states, permitting seed and hulls from these states to enter the United States under permit and regulation for milling purposes, the Department of Agriculture not having had any knowledge at the time of any importations of Egyptian or other foreign seed into Mexico.

Following the establishment of a strict quarantine against such products from Mexico on November 4, accurate information was obtained of the disposition of the cotton seed which had come across the border under permit during the season 1916. Prior to that year practically no Mexican cotton seed had been shipped to the United States from Mexico, but in that year before the notice of November 4, 1916, a large movement consisting of 436 cars of Mexican seed from the Laguna district to the United States occurred, the seed being sent to mills in eleven different points in Texas.

As soon as the danger was realized, experts of the Federal Horticultural Board, in coöperation with the Texas state authorities, the cotton mill owners concerned, and the Cotton-seed Crushers' Association of Texas, began a campaign to expedite the milling of this seed about the premises.

Control work was immediately instituted by the Federal Horticultural Board with funds available from the regular appropriation, and Congress made an initial emergency appropriation of $50,000, which became available March 4, 1917. The scope of this work is indicated in the following text of the appropriation:

> To enable the Secretary of Agriculture to meet the emergency caused by the existence of the pink bollworm of cotton in Mexico and the movement of some five hundred carloads of cotton seed from the infested districts in Mexico to milling points in Texas and elsewhere, and to prevent the establishment of such insect in Texas or in any other state by providing for adequate inspection and the employment of all means necessary under rules and regulations to be prescribed by him, to prohibit the movement of cotton and cotton seed from Mexico into the United States, including the examination of baggage and railroad cars or other means of conveyance and the cleaning and disinfection thereof; to inspect mills in Texas, or elsewhere in the United States to which Mexican cotton seed has been taken for milling; to supervise the destruction, by manufacture or otherwise, of such seed and the thorough clean-up of the mills and premises; to conduct local surveys and inspections of cotton fields in the vicinity of such mills and ports of entry in order to detect any instances of local infestation; and to determine and conduct such control measures in coöperation with the State of Texas or other states concerned as may be necessary to stamp out such infestation, . . . $50,000, available immediately and until expended.

A border control, including control of all car and freight traffic between Mexico and the United States, was organized with headquarters at San Antonio. A number of entomologists were assigned to the work of mill and field inspection during the summer of 1917 and inspectors were assigned to the border-control work at Brownsville, Laredo, Eagle Pass, and El Paso.

During the growing season of 1917 inspectors made frequent examinations of all cotton fields in the vicinity of the mills which had received Mexican cotton seed to determine at the earliest moment whether any of the insects had escaped from the imported seed and infested the adjacent fields, provision being made for the prompt destruction of cotton in any field showing any sign of infestation.

In order to secure as definite information as was possible, of the distribution of the pink bollworm in the Laguna district and elsewhere in Mexico, an expert of the Bureau of Entomology was commissioned by the Federal Horticultural Board to begin early in April, 1917, as thorough-going an investigation as was possible under the disturbed conditions then obtaining in Mexico, for which purpose the coöperation of the Mexican Government was sought through the United States Department of State. Conditions in Mexico at that time, however, were such that the work could only be imperfectly done. It was found that this pest was generally distributed throughout the Laguna district, and exact information was obtained of the seed importations in 1911 from Egypt which brought this pest into Mexico.

The first outbreaks of the pink bollworm pest in Texas were in September and October, 1917, at three different points, the most important of which was in the vicinity of Trinity Bay, Texas. Clean-up operations of the most radical character were immediately instituted on the discovery of each of these several points of infestation, which were made possible by a further emergency appropriation by Congress of $250,000, available October 6, 1917. In this survey and clean-up work the Board had the coöperation of the State Department of Agriculture of Texas.

Prior to the discovery of the actual presence of the pink bollworm in Texas the authorities of that state deemed it important that the state should enact legislation giving authority to establish a zone free from cotton culture on the border of Texas adjacent to Mexico. An informal conference was held in Washington, under the auspices of the Department of Agriculture, on July 17, 1917, participated in by the Commissioner of Agriculture of Texas and other officers, including Representatives in Congress from that state. As a result of this conference Texas, on October 3, 1917, enacted a law for the establishment of cotton-free zones and giving quarantine and other powers of control in relation to any districts in Texas infested with the pink bollworm. This act, which called for Federal coöperation, became effective ninety days after the adjournment of the state legislature. At that time the estimated infestation surrounding Trinity Bay involved between six and seven thousand acres of cotton land.

Under this act the Governor of Texas, by proclamation, instituted a pink bollworm quarantine on January 21, 1918, placing under quarantine as to the cotton crop two districts; one an area six miles in diameter at Hearne, and the other the Trinity Bay and Beaumont districts including the counties of Chambers and Jefferson and portions of Galveston, Brazoria, Fort Bend, Harris, Liberty, and Hardin counties. A small section, including Arcola and extending to the Brazos River, was added by proclamation of February 25, 1918.

On February 18, 1918, a border non-cotton zone was established by proclamation of the Governor to include the counties of Kinney, Maverick, and Valverde, and on February 25, 1918, a proclamation of non-cotton zones was issued for the three districts above mentioned. This prohibited the growth of cotton in those counties and districts for a period of three years from the date of the proclamation or so long as the pink-bollworm menace existed. An educational campaign was carried on to induce the planters in these zones to raise other crops such as soy beans, peanuts, sugar cane, etc.

The next year cotton growing was permitted in the quarantined zone of eastern Texas, other than the zone on the Mexican border, under strict state control.

An act of Congress approved October 1, 1918, made an appropriation of $500,000 for carrying on the following activities:

(1) To prevent the movement of cotton and cotton-seed from Mexico into the United States, including the regulation of the entry into the United States of railway cars and other vehicles, and freight, express, baggage, or other materials from Mexico, and the inspection, cleaning, and disinfection thereof, $50,000.

(2) To make surveys to determine the actual distribution of the pink bollworm in Mexico and to exterminate local infestations in Mexico near the border of the United States in coöperation with the Mexican Government, or local Mexican authorities, $25,000.

(3) To investigate in Mexico or elsewhere the pink bollworm as a basis for control measures, $25,000.

(4) To conduct surveys and inspections in Texas or in any other state to detect any infestation and to conduct such control measures, including the establishment of cotton-free areas, in coöperation with the State of Texas or other States concerned, as may be necessary to stamp out such infestation, to establish in coöperation with the states concerned a zone or zones free from cotton culture on or near the border of any state or states adjacent to Mexico, and to coöperate with the Mexican Government or local Mexican authorities, or otherwise, by undertaking in Mexico such measures for the extermination of the pink bollworm of cotton as shall be determined to be practicable from surveys showing its distribution, $400,000.

In addition to the work carried on by the Federal Horticultural Board under this appropriation and by the Texas state authorities and Mexican authorities, the War Department in 1919 extended its active coöperation in the cotton survey work by detailing pilots with airplanes, particularly for locating cotton fields in the wooded and sparsely settled portions of the quarantined districts of Texas.

On March 10, 1919, a new pink bollworm law was enacted by Texas, the principal new feature of which was a provision for the establishment of zones or districts in which the growing of cotton may be permitted under regulation, the immediate object being to permit the growth of cotton under restriction in the old quarantined areas of eastern Texas. On March 15 the old Trinity Bay district was declared a regulated zone, and on April 24, 1919, the growth of cotton under regulation was permitted in all the zones established in the interior of Texas except a small portion of the Hearne zone. The prohibition continued to exist in the above-mentioned border counties.

During the year 1919 up to the month of October, as the result of the inspection activities, no evidence of the pink bollworm was found, this pest having apparently been exterminated in the United States. In the latter part of that month, however, a few examples of pink bollworm were found in the Trinity Bay district of southeastern Texas, and surveys made in the winter of 1919-20 disclosed some forty-three infested fields scattered throughout this district. The pink bollworm was also discovered early in February, 1920, in a limited district in Louisiana.

Yielding to the pressure of the planters, the Texas legislature on October 10, 1919, amended the act of October 3, 1917, so as to permit the growth of cotton under regulation in the noncotton area established under the original act, and the state authorities adopted the policy of permitting cotton to be grown under regulation with authority to destroy the plants in the infested fields from time to time if infestation should be determined. This policy of the state authorities was adopted after the reappearance of the pest in Texas and in spite of the fact that the United States Department of Agriculture pointed out that its adoption would mean the practical abandonment of the fight to exterminate the pink bollworm in the United States. This act and the attitude on the part of the Texas authorities greatly restricting control work, and the discovery of new infestations and of reinfestations gave a new and serious turn to the pink-bollworm situation.

A new act of the legislature of Texas, approved June 19, 1920, omitted certain important powers which were included in the law of 1919, but had some improvements over it. The most important of its defects, from the viewpoint of the United

States Department of Agriculture, was its failure to provide for a non-cotton zone for 1920 to put an immediate stop so far as possible to further multiplication of the insect in the invaded Trinity Bay district. It provided, however, for a continuation of all regulated zones for 1920 and for regional clean-up of cotton fields after harvest in such zones. It appropriated $50,000 for the administration of the act and $50,000 for compensation of farmers suffering losses occasioned by its enforcement. It contained a declaration that the pink bollworm is a public nuisance and a menace to the cotton industry, and that its eradication is a public necessity.

In Louisiana, the discovery early in February, 1920, that the pink bollworm had invaded three parishes in southwestern Louisiana, resulted in immediate field inspection in that state. Later in the year infestation was also found in a field near Shreveport, but nowhere else. On March 5, 1920, the Governor of Louisiana called an interstate conference at New Orleans, after which the legislature enacted necessary legislation in an act approved July 6, 1920, and established non-cotton zones for all infested districts, and regulated areas for all the points within the state, to which seed or cotton had moved from these infested districts. Provision was also made for a state fund of $250,000 for the enforcement of this law and for the reimbursement of planters in the non-cotton areas for losses sustained through growth of other less profitable crops. Effective steps were at once taken to carry out the provisions of this act.

On March 3, 1920, a resolution was adopted at a meeting of the Association of Cotton State Entomologists at Vicksburg, Mississippi, "That in order to prevent the further spread of the pink bollworm, the Federal Horticultural Board should impose a quarantine against the movement from the states of Texas and Louisiana into other states, of all materials and things which are, or would be likely to carry and distribute infestation. . . ." It was further resolved that the several states of the cotton belt should immediately impose similar quarantines against these two states.

In view of this situation, hearings were conducted in Washington, on April 6 and 7, to consider the need of a federal quarantine of Texas and Louisiana to prevent the spread of the pest to other cotton-growing states. Following this hearing and in view of the fact that the federal quarantine would probably modify or replace the quarantine action which had been taken or which was being contemplated by other cotton-growing states with respect to Texas and Louisiana it seemed desirable for the Secretary of Agriculture to call a conference of all the cotton-growing states on July 14, 1920, to consider and pass upon the proposed federal quarantine. The conference was attended by representatives of eight states. The preliminary draft of the federal quarantine was considered at this conference, and a general agreement was reached to harmonize state action with the federal action or to permit the federal action to replace state quarantines.

A federal quarantine of Texas and Louisiana (Quarantine No. 46) was promulgated July 21, effective August 1, 1920, and was so drawn as to apply, in its restrictions on the movement of cotton and other articles, to the areas known to be infested or suspected of possible infestation in the two states concerned, but this limitation was conditioned upon the enforcement by these states of effective control measures with respect to the crops produced in the restricted districts.

For the fiscal years 1920 and 1921 Congress appropriated $595,800 and $533,560, respectively, for pink bollworm control work. Additional annual appropriations were made thereafter for this work. A Joint Resolution of August 9, 1921 (42 Stat. L., 158), made provision for federal participation with the states in the compensation of farmers in non-cotton zones. As mentioned above, during the same year the Texas legislature appropriated $100,000, and the Louisiana legislature $250,000 for the work of bollworm survey and control and for compensation of planters.

During that fiscal year the pink bollworm gained a slight foothold in New Mexico, and its area was somewhat extended in

Texas, but the infestation was very much reduced in Louisiana. As an apparent result of the failure of the Texas authorities to carry out the full program of extermination as originally contemplated, including enforcement of non-cotton zones for all infested areas, the infestation reappeared in 1921 in three of the older districts of Texas.

In Louisiana, the prompt and efficient work of the state in coöperation with the federal authorities produced a favorable outlook for the extermination of that pest. The three parishes determined as infested in 1919 continued to be maintained as non-cotton zones in 1920 and 1921, and other suspected areas were under regulation. Thorough-going clean-up operations were given to the Shreveport district in the winter of 1920-21, and this district was also maintained as a non-cotton zone for 1921.

In New Mexico, pink bollworm infestation was discovered at Carlsbad in the Pecos Valley, where cotton is grown under irrigation and where efficient control was possible on this account under adequate state authority and support.

On March 7, 1923, New Mexico adopted a law licensing cotton gins and requiring the installation of an approved seed-disinfecting machine, which, in other states, has been accomplished through regulations under general laws.

Owing to the continued border control to prevent the reëntry of the pink bollworm, the thorough scouting for discovery of possible new infestations or reinfestations, the clean-up work, the disinfection of cotton seed, and the continued inspection work in Mexico as a basis for control measures, the pink bollworm for several years appeared to have been eliminated, except in certain areas in western Texas and New Mexico, where, on account of proximity to and contact with infested areas, continued reinfestations were inevitable. Effective control measures were maintained, however, to prevent the spread eastward from these infested areas. In the meantime, owing to the absence of infestations for several years, the quarantined areas in Louisiana and certain counties in eastern New Mexico were released from further restriction.

In 1926 an unfavorable situation developed in the western areas. The pink bollworm infestation was found to have invaded southeastern Arizona where three counties were involved, and it was rediscovered for the first time since 1922 in the Mesilla Valley, and for the first time since 1921 in the Pecos Valley of New Mexico, where the infestation extended to a point forty miles north of its former bounds; and other new infestations were discovered and increased destructiveness was observed at other points.

During the first three months of 1928 a serious development of the pink bollworm situation was determined, this pest having been discovered in seven new counties of western Texas, where nearly 400,000 acres of cotton are grown. The fact that these counties are located on the edge of the main Cotton Belt, whence cotton plantings are more or less continuous eastward to the Atlantic seaboard, made this infestation a much greater menace than the older infestations in western Texas, New Mexico, and Arizona.

After the extent of this new infestation was disclosed and to meet the emergency, Congress appropriated $487,800 for the fiscal year 1929, of which $200,000 was made immediately available by a joint resolution adopted March 7, 1928 (45 Stat. L., 247).

Immediate control plans for this area were adopted comprising state and federal quarantine restrictions; tracing and intercepting shipments out of the area likely to spread infestation; sterilizing all cotton seed remaining in the area; thoroughly cleaning gins, mills, and other concentration centers so as to destroy material likely to carry over infestation into the next crop year; and increased precautions to prevent the influx of cotton seed from the older infested areas to the west.

Another joint resolution adopted May 21, 1928 (45 Stat. L., 688), authorized an appropriation of $5,000,000 "to be expended in coöperation with the proper authorities of the state concerned in compensating any farmer for his actual and necessary loss due to the enforced nonproduction of cotton within said [non-cotton] zones." This appropriation was made in the Second Deficiency Appropriation Act of May 29, 1928 (45 Stat. L., 896), but $4,250,000 of the unexpended balance of this appropriation was made available for Mediterranean fruit-fly work by joint resolution of May 2, 1929 (46 Stat. L., 2).

In the opinion of the authorities of the Department of Agriculture, the pink bollworm would be bound to spread eastward and hopelessly involve the entire Cotton Belt if immediate steps were not taken to eradicate this pest. The present work being carried on by the Plant Quarantine and Control Administration to meet this new pink bollworm situation is described in the chapter on Activities.

As the pink bollworm was prevalent in the Territory of Hawaii, Quarantine No. 9 was promulgated on June 24, 1913, which prohibited the movement of all cotton seed and cotton-seed hulls from that territory to the continent of the United States. Quarantine No. 23, promulgated June 11, 1915, effective July 1, 1915, similarly prohibited the movement of lint, and an amendment of February 11, 1916, forbade the movement of cotton from Hawaii to the United States.

In the latter part of 1919 a request came to the Federal Horticultural Board for a permit for the entry into the United States from Porto Rico of a considerable quantity of cotton seed for milling at oil mills in the Southern States. Until then, there had been little or no movement of such seed from Porto Rico to the mainland, and there was no quarantine under which the proposed shipment could have been prevented. On request of the Board, however, shipment was withheld until an examination of the cotton situation of the island with respect to plant diseases and insect pests could be made. When an investigation was made it was found that the entry of raw cotton seed or cotton-lint from Porto Rico would be undesirable because of the existence of certain plant pests particularly a cotton blister mite (*Eriophyes gossypii*) not known to exist in the United States, which had been the occasion of much loss to the cotton crop of Porto Rico and other islands of the West Indies. For the purpose of excluding this mite and a cotton-boll disease which was known to exist there, Quarantine No. 47, effective August 15, 1920, was promulgated July 31, 1920, against Porto Rican cotton, cotton seed, and cotton-seed products. To avoid the multiplicity of quarantines, the similar quarantines against the pink bollworm (Nos. 9 and 23-revised) already issued with respect to Hawaiian cotton were incorporated in Quarantine No. 47, so that the domestic movement of all cotton, cotton seed, and cotton-seed products from Hawaii and Porto Rico are now governed by one order and series of regulations. As now in force Quarantine No. 47 prohibits or regulates the movement of cotton, cotton seed, and cotton-seed products from the Territories of Hawaii, and Porto Rico into or through any other Territory, State, or District of the United States on account of the pink bollworm and the cotton blister mite respectively.

The above-mentioned Quarantine No. 46, on account of the pink bollworm, prohibited the interstate movement, from the infested and regulated area of Texas and Louisiana, of cotton, including all parts of the plant, seed cotton, cotton lint, linters, gin waste, and all other forms of cotton lint, cotton seed, cotton-seed hulls, cotton-seed cake and meal, bagging and other containers of the articles enumerated, and also railway cars, boats, and other vehicles which have been used in conveying cotton and cotton products grown in the infested districts or which are fouled with such products, hay and other farm products, farm household goods, and farm equipment, except as provided in the rules and regulations supplemental thereto.

Quarantine No. 46 was superseded by Quarantine No. 52, by promulgation of August 19, 1921, effective September 10, 1921, which is almost identical with the former except that it added New Mexico and Arizona to, and eliminated Louisiana from the territory under quarantine. Quarantine No. 52 was amended November 2, 1928, by modifying the regulations with respect to the movement of cotton seed and lint, and on May 16, 1929, by releasing part of Dawson County, Texas, from the regulated area. It is still in force.

Date Scale Eradication. The rapid development of the date industry in California, Arizona, and Texas, resulted, in 1913, in an investigation by the Bureau of Entomology of the two principal date scale insect pests, the *Parlatoria blanchardi* and the *Phoenicococcus marlatti* which infested date palms in certain sections of these three states. A station was established by that bureau at El Centro, Riverside County, California, with branches in Arizona and Texas, to carry on this work. On the recommendation of the Federal Horticultural Board a domestic quarantine (No. 6) was promulgated March 1, 1913, to prevent the spread of these pests to other sections. As at present in force, this quarantine prohibits, except as provided in the rules and regulations supplemental thereto, the interstate movement of date palms and date-palm offshoots from Riverside County, California, east of the San Bernardino meridian; Imperial County, California; Yuma, Maricopa, and Pinal counties, Arizona; and Webb County, Texas, on account of the Parlatoria scale and the Phoenicococcus scale.

The work of extermination was continued through the coöperation of the Federal Horticultural Board and the Bureaus of Entomology and Plant Industry. With the idea of enabling these units to bring this work to a conclusion Congress, on March 3, 1921 (41 Stat. L., 1346), especially appropriated $15,000, of which $5000 was made immediately available. Since then, annual appropriations have been made for the study and control of these insect pests. With these funds the Board has extended its field work of extermination, and the Bureau of Entomology has made a biological study of the pests. The Parlatoria scale having been found by experts of the Bureau of Plant Industry and others to be so destructive that the date-palm industry in this country cannot survive unless it is eradicated, special attention was given to this pest by a corps of date-scale inspectors of the Board. State and county officers of California and Arizona coöperated in this work.

Until the latter part of 1927 there appeared to be a promising outlook for the complete eradication of the Parlatoria date scale from the United States, but several new infestations were discovered in California and Arizona which were serious enough, in the opinion of the growers and of the date experts of the Department of Agriculture, to threaten the entire date industry in the United States. To enable the Department of Agriculture to meet this emergency, a supplemental appropriation of $25,000 was included in the deficiency bill of December, 1927, and the control work was completely reorganized. A thorough survey was made and a clean-up campaign was undertaken by the Federal Horticultural Board under the direction of an expert transferred from the Bureau of Entomology. The survey indicated a possibility of ultimately eradicating the scales if sufficient appropriation is made for carrying on the work.

The method of eradication which is now being carried on by the Plant Quarantine and Control Administration consists of defoliating the trees and torching them with gasoline torches. Up to June 30, 1928, about 5600 date palms were given this treatment. About 2500 infested trees were dug out and destroyed, as they were considered to be no longer of any commercial value. Specialists of the Bureau of Plant Industry are encouraging the establishment of scale-free date plantings in certain new districts in the Southwest.

Thurberia Weevil Control. The Thurberia or Arizona boll weevil (*Anthonomus grandis thurberiae*) is a variety of the well-known boll weevil of the South and is regarded as a cotton pest of the first magnitude. Its natural host plant is the Thurberia or wild cotton, but it has been demonstrated that it also attacks cultivated cotton. It is specially adapted physiologically to thrive in arid regions, but there are indications that it may become even more injurious where irrigated cotton is grown in arid regions than the Mexican boll weevil is in the main Cotton Belt. It can hibernate in cultivated cotton during the winter with scarcely any mortality, whereas the Mexican boll weevil in its range from central Texas eastward suffers a high percentage of winter mortality. So far, the infestation exists in only a few counties of Arizona, but there is danger of its spread to other parts of the state and to New Mexico and Texas.

The menace of this pest to the important cotton development in the area extending from central Texas westward having been established, a hearing to consider the advisability of establishing a federal quarantine was held in Washington, June 1, 1926, and resulted in the promulgation on July 2 of domestic Quarantine No. 61, which became effective July 15, 1926. As revised on July 9, 1927, the quarantine prohibits, on account of the Thurberia weevil, the interstate movement of Thurberia (a plant which is distantly related to cotton), including all parts of the plant, from any point in Arizona, and prohibits, except as provided in rules and regulations supplemental thereto, the interstate movement from the regulated area of Arizona of: (1) Cotton, including all parts of the plant, seed, cotton, cotton lint, linters, and all other forms of unmanufactured cotton lint, gin waste, cotton seed, cotton-seed hulls, and cotton-seed cake and meal; (2) bagging and other containers and wrappers of cotton and cotton products; (3) railway cars, boats, and other vehicles which have been used in conveying cotton and cotton products, or which are fouled with such products; (4) hay and other farm products; and (5) farm household goods, farm equipment, and, if contaminated with cotton, any other articles.

For the enforcement of the original quarantine and for making the necessary surveys to determine the boundaries of the areas to be specifically covered and declared to be infested, authority was given the Department of Agriculture by Congress in the Second Deficiency Act of July 3, 1926 (44 Stat. L., 841, 852), to use up to $35,000 from the appropriation for the eradication of the pink bollworm. This quarantine and control work was assigned to the Federal Horticultural Board. An additional appropriation of $15,000 was made to the Bureau of Entomology for research work in connection with the Thurberia weevil. The quarantine and control work was carried on by the Board in coöperation with the State of Arizona.

During the year 1926, inspectors found that the Thurberia weevil had spread to new recently developed cotton areas in Cochise and southern Graham counties, and Quarantine No. 61 was revised to add these districts to the regulated area. The new regulation also required that cotton lint be compressed as well as disinfected as a condition for interstate movement. The control work undertaken consisted of scouting, which is combined with that for the pink bollworm; the compressing and fumigating of cotton lint, and heating of cotton seed; and road inspection.

On October 26, 1926, a temporary injunction, which was later made permanent, was granted in a federal court at Los Angeles prohibiting the State of Arizona from carrying out the state Thurberia weevil quarantine within that area. As this did not apply to the federal quarantine, an injunction was applied for, and was granted November 19, 1926, against the United States Secretary of Agriculture, the Federal Horticultural Board, and their agents, prohibiting them from carrying out the provisions of Quarantine 61. The latter injunction was dissolved the following year, and the quarantine and control work was resumed.

Other Plant Quarantines. The object of the first foreign quarantine under the act of 1912 was the plant disease known as "white pine blister rust" (*Cronartium ribicola*). It was promulgated, as Quarantine No. 1, on September 16, 1912.

Quarantine No. 1 was amended and superseded by Quarantine No. 7, promulgated May 21, 1913. The quarantine was originally imposed to prevent the introduction into the United States of the white pine blister rust, and it forbade the importation into the United States from each and every country of Europe and Asia of all five-leafed pines. Later amendments added currant (*Ribes*) and gooseberry (*Grossularia*) plants to the forbidden stock, and added other countries to the quarantined areas. The present designation is "Quarantine No. 7, Five-leafed pines, Ribes and Grossularia." It forbids the importation from the above-indicated countries and from the Dominion of Canada and Newfoundland, of all five-leafed pines and of all species and varieties of currant and gooseberry plants.

A plant disease known as the potato wart (*Synchytrium endobioticum*) was the object of Quarantine No. 3, which was promulgated as a foreign quarantine September 20, 1912. The potato wart disease or potato canker is one of the most serious diseases of this important crop. It was first discovered in Hungary, and it occurs in many countries of Europe, in South America, and in some other localities. In the United States it is found in limited areas in Maryland, West Virginia, and Pennsylvania. The organism causing the disease can persist in the soil for many years and is readily carried from place to place in the soil. The tomato has also been found capable of harboring the disease. There appears to be no known remedy for the disease, and its existence in the soil puts an end to potato culture there.

Quarantine No. 3 forbids the importation of potatoes from Newfoundland, the islands of St. Pierre and Miquelon, Great Britain and Ireland, Germany, and Austria Hungary on account of this disease. The quarantine is still in force.

The discovery in the State of Maine, in 1913, of the disease known as the " powdery scab of potatoes " (*Spongospora subterranea*) was the occasion for Foreign Quarantine No. 11, promulgated December 22, 1913. The quarantine order forbade the importation of Irish potatoes from Canada, Newfoundland, the islands of St. Pierre and Miquelon, and from Europe whence it originally came. Several amendments were made the next year exempting Belgium, Denmark, the Netherlands, and Canada under certain regulations, from these restrictions. An amendment of June 25, 1914, eliminated Porto Rico from the provisions of Quarantine No. 11 and the regulations governing the importation of potatoes into the United States.

Domestic Quarantine No. 14, on account of the same potato plant disease, was promulgated April 14, 1914, effective August 1, 1914, to prevent further distribution in the United States of this disease which then existed in certain portions of the State of Maine. A supplementary Quarantine, No. 18, promulgated November 14, 1914, regulated the movement of potatoes from Clinton and Franklin counties, New York on account of the occurrence of this disease in these counties. These quarantines were administered under special appropriation providing for cooperation on the part of the state concerned. At the same time studies of the disease were made by the Bureau of Plant Industry.

Domestic Quarantines Nos. 14, and 18, on account of the powdery scab of potatoes, were lifted by an order of the Secretary of Agriculture dated August 30, 1915, and Foreign Quarantine No. 11 was lifted January 11, 1916, after a survey had been conducted by the Board, in coöperation with the Bureau of Plant Industry, of all the principal potato-growing regions of the United States, which had been subject to possible contamination by the receipt of seed potatoes from infected districts in Maine and New York or from foreign sources. The survey indicated that the disease is limited by climatic conditions and normally is to be feared only in restricted localities of the northern areas of the United States.

A foreign avocado seed quarantine (No. 12) was promulgated February 27, 1914, effective on that date, to prevent the introduction into the United States of the avocado weevil (*Heilipus lauri*), and forbids the importation into the United States of the seeds of the avocado or alligator pear from Mexico and the countries of Central America. This quarantine is still in force. As the avocado weevils have been invariably found in the seed only, an order of the Board dated August 2, 1922, permits the entry of stoned or seeded Mexican avocados for local consumption at border ports. Other subsequent orders permit the entry of avocados from Colombia at northern ports and from Cuba at all ports, a series of surveys conducted in Cuba by Department of Agriculture investigators having disclosed that Cuban avocados are free from pests likely to be harmful in this country.

As a result of field observations made in 1913 and 1914 by the Bureau of Plant Industry and the Bureau of Entomology, of the principal sugar-cane diseases and insects, respectively, existing in the United States, it was found expedient to promulgate on June 6, 1914, a foreign sugar-cane quarantine (No. 15) to prevent the introduction into the United States of injurious insects and fungous diseases of the sugar cane, and forbidding the importation into the United States from all foreign countries of living canes of sugar cane or cuttings or parts thereof. This quarantine order does not apply to importations into the Hawaiian Islands and Porto Rico.

A domestic sugar-cane quarantine (No. 16) was promulgated on the same day, to prevent the further distribution in the United States of these insects and diseases of the sugar cane existing in the territories of Hawaii and Porto Rico, and prohibits the movement of living canes of sugar cane or cuttings or parts of the same from these territories into or through any other state, territory, or district.

A plant disease known as citrus canker (*Bacterium citri*) was introduced about 1908 with the Japanese tri-foliate orange stock, a plant which was already abundantly available in this country for multiplication by simple and easy nursery methods. It was reported in the Gulf States in the summer of 1914. The disease attacks all parts, above the ground, of practically all varieties of citrus plants. It occurs in many parts of Asia and Oceania and in South Africa. The Bureau of Plant Industry made a hasty examination of the infected region and discovered the existence of an unusually grave emergency, but there were no adequate funds available for effective attempts to check the spread of the disease. An appropriation of $35,000 was made available January 25, 1915, and coöperative arrangements were entered into between the Bureau of Plant Industry and the Gulf States for the inspection and for the eradication of the disease. Subsequent additional funds were provided by Congress and by the several states to carry on this work which still occupies the attention of the Bureau of Plant Industry.

In order to prevent the further introduction of this and other dangerous citrus diseases from foreign countries, a foreign quarantine (No. 19) against the importation of citrus nursery stock was promulgated December 10, 1914, effective January 1, 1915, forbidding the importation into the United States from all foreign countries and localities of all citrus nursery stock, including buds, scions, and seeds. This quarantine is still in force.

On June 27, 1917, the Secretary of Agriculture promulgated foreign Quarantine No. 28, effective August 1, 1917, forbidding, on account of this disease, the importation into the United States of all species and varieties of citrus fruits from eastern and southeastern Asia (including India, Siam, Indo-China, and China), Malay Archipelago, the Philippine Islands, Oceania (except Australia, Tasmania, and New Zealand), Japan (including Formosa and other islands adjacent to Japan), and the Union of South Africa. Exception is made in the case of oranges of the mandarin class, which may be imported under permit and upon compliance with certain conditions prescribed in the regulations of the Secretary of Agriculture. This quarantine is still in force as originally promulgated.

The existence in India of a very destructive disease of Indian corn known as *Sclerospora maydis,* and, in Java, of a similar disease, actuated the Secretary of Agriculture to promulgate, on March 8, 1915, Quarantine No. 21, prohibiting the importation from Java and India, and from Oceania except Australia and New Zealand, of Indian corn, except for scientific or experimental purposes. Although there were no commercial importations of corn from Java and India at the time, there were small experimental lots brought in by private individuals which were liable to be instrumental in introducing and establishing the disease in this country.

Later on, this and other injurious diseases of Indian corn and other closely related plants were reported to be prevalent in southeastern Asia, the Malayan Archipelago, and other Pacific Islands, resulting in the promulgation on April 29, 1916, effective July 1, 1916, of Quarantine No. 24, which supersedes No. 21, and which, with several amendments, is now in force. As it now stands it forbids the importation into the United States, in the raw or unmanufactured state, from southeastern Asia (including India, Siam, Indo-China, and China), Malayan Archipelago, Australia, New Zealand, Oceania, Philippine Islands, Formosa, Japan, and adjacent islands, of seed and all other portions of Indian corn or maize and the closely related plants, including all species of teosinte (*Euchlaena*), Job's tears (*Coix*), *Polytoca, Chionachne* and *Sclerachne,* except for experimental or scientific purposes by the Department of Agriculture, on account of the downy mildews and physoderma diseases of Indian corn. Indian corn may, however, be imported under permit and upon compliance with conditions prescribed in the regulations of the Secretary of Agriculture.

About the year 1914 a new pine tree insect pest known as the European pine-shoot moth (*Evetria buoliana*) was introduced from Europe in some shipments of nursery stock. It soon became established in nurseries, parks, and private grounds in some of the eastern states, and became a serious menace to North American pines. The Secretary of Agriculture therefore on March 1, 1915, promulgated Quarantine No. 20, to take effect July 1, 1915, forbidding the importation of all pines not previously excluded by Quarantine No. 7 [on account of the white pine blister rust] from all European countries and localities. This quarantine is still in force.

A foreign and a domestic sweet-potato and yam quarantine (Nos. 29 and 30, respectively), both promulgated December 18, 1917, and effective January 1, 1918, forbid the importation for any purpose of any variety of sweet potatoes and yams from all foreign countries and localities, and their shipment from Hawaii and Porto Rico to the continent of the United States, on account of the sweet-potato weevils (*Cylass formicarius*) and the sweet-potato scarabee (*Euscepes batatae*). The sweet-potato scarabee at the time of the quarantine had a fairly wide distribution in the West Indies, in South America, and in certain trans-Pacific islands and countries. The sweet-potato weevil had already obtained a firm foothold in this country. The control of these insects is extremely difficult because the larvæ may be entirely hidden within the tubers and thus be beyond the reach of disinfectants, hence the need for the quarantine. Both of these quarantines are still in force in their original forms.

A foreign and a domestic quarantine against the banana plant (Nos. 31 and 32) were promulgated March 15, 1918, and became effective April 1, 1918. The foreign quarantine (No. 31) forbids the importation of any species or variety of banana plants from all foreign countries and localities, on account of the banana root borer (*Cosmopolites sordidus*). This insect was known to have a fairly wide distribution throughout the tropical regions of both hemispheres and had been the cause of extensive loss to plantations in countries where it had been established. The insect was discovered in Florida in 1918, and radical measures have been undertaken by that state in coöperation with the United States Department of Agriculture to effect its extermination.

The domestic banana plant quarantine (No. 32) prohibits the movement from Hawaii and Porto Rico into the United States of any species or variety of banana plants regardless of the use for which they are intended, on account of two injurious weevils (*Rhabdocnemis obscurus* and *Metamasius hemipterus*).

These quarantines, which are still in force, do not prohibit the importation or movement of the fruit of the banana plant.

The bamboo smut (*Ustilago shiraiana*) and other dangerous plant diseases, which have been imported on bamboo plants into California and Florida, have necessitated the issue of a foreign quarantine (No. 34) against the introduction of bamboo plants, promulgated August 8, 1918, effective October 1, 1918. It forbids the importation for any purpose of any variety of bamboo seed, plants, or cuttings capable of propagation, from all foreign countries and localities. The quarantine order does not apply to bamboo timber consisting of the mature dried culms or canes or to any kind of articles manufactured from bamboo, or to bamboo shoots, cooked or otherwise preserved. The quarantine is still in force.

Plant diseases known as flag smut (*Urocystis tritici*) and take-all (*Ophiobolus graminis*), the former existing in Australia, India, and Japan, and the latter in Australia, Italy, France, Germany, Belgium, Great Britain, Ireland, and Brazil, which were regarded as dangerous if imported, to our wheat, oats, barley, rye, and rice crops, became the object of Foreign Quarantine No. 39 by promulgation of July 2, 1919, effective August

15, 1919. The quarantine forbade, absolutely, the importation into the United States, from the countries mentioned, of seed or paddy rice and of all species and varieties of wheat, oats, barley, and rye in the raw or uncleaned or unprocessed state, except on compliance with certain regulations prescribed by the Secretary of Agriculture.

Quarantine No. 39 was superseded by Quarantine No. 59, promulgated December 31, 1925, effective February 1, 1926, which forbids, on account of the flag smut disease, the importation from India, Japan, China, Australia, Union of South Africa, Italy, and Spain, of all species and varieties of wheat and wheat products, except such as have been so milled or so processed as to have destroyed all flag-smut spores. This quarantine is still in force.

A foreign European Corn Borer Quarantine No. 41 was promulgated February 21, 1920. It prohibited or restricted the entry of broom corn, Indian corn, and related plants, in order to prevent the further importation into the United States of the corn borer or of other dangerous insects or of plant diseases through the agency of stalks or other portions of these plants. This quarantine was amended from time to time, as needed. In its present amended form, it forbids, except as provided in supplemental rules and regulations, the importation from all foreign countries and localities, of the stalks and all other parts, in the raw or manufactured state, of Indian corn or maize, broom corn, sweet sorghums, grain sorghums, Sudan grass, Johnson grass, sugar cane, pearl millet, napier grass, teosinte, and Job's tears on account of the European corn borer and other dangerous insects and plant diseases.

A foreign quarantine (No. 42) against the importation of Indian corn or maize from Mexico was promulgated February 21, 1920. A revision of Quarantine No. 41 approved February 10, 1927, effective March 1, included the provisions of Quarantine No. 42 which was discontinued.

A quarantine (No. 44) against fruit stocks from Asia, Japan, the Philippine Islands, and Oceania (including Australia and

New Zealand), was promulgated March 24, 1920, effective June 1, 1920, on account of dangerous plant diseases, including Japanese apple cankers (*Valsa mali* and *Diaporthe mali*), blister blight (*Taphrina piri*), and rusts (*Gymnosporangium koreaense* and *G. photiniae*), and injurious insect pests, including the Oriental fruit moth (*Laspeyresia molesta*), the pear fruit borer (*Nephopteryx rubrizonella*), the apple moth (*Argyresthia conjugella*), the large pear psylla (*Psylla pyrisuga*), the *Lecanium glandi,* and the *Lecanium kunoensis.* It prohibits importation into the United States, from the above-mentioned countries, of stocks, cuttings, scions, and buds of fruits for propagation. This quarantine is still in force.

A Foreign Quarantine No. 49 concerning the citrus black fly (*Aleurocanthus woglumi*), was promulgated February 16, 1921, effective April 1, 1921, under which the entry into the United States of fruits and vegetables from Cuba, the Bahamas, Jamaica, Canal Zone, Costa Rica, India, Philippine Islands, Ceylon, and Java was regulated. The quarantine applied to fruits and vegetables in the raw or unprocessed state and to plants and portions of plants used as packing materials in connection with the shipment of such fruits and vegetables. An important feature of the quarantine was to make provision for the movement of clean fruit and vegetables which were uncontaminated with leafage or other portions of plants apt to convey the black fly.

Quarantine No. 49 was included in and superseded by Quarantine No. 56, which was promulgated August 1, 1923, effective November 1, 1923, and subsequently amended. As now in force No. 56 forbids, except as provided in rules and regulations supplemental thereto, the importation of fruits and vegetables not already subjects of special quarantines or other restrictive orders, and of plants or portions of plants used as packing material in connection with shipments of such fruits and vegetables, from all foreign countries and localities other than the Dominion of Canada, on account of injurious insects, including fruit and melon flies (*Trypetidae*).

During the latter part of November, 1923, inspectors of the Federal Horticultural Board discovered a slight infestation of what appeared to be larvæ of the Mediterranean fruit fly (*Ceratitis capitata*) in the so-called Malaga white grapes (grown in the Province of Almeria, Spain) arriving in the ports of New York and Boston. Though the Mediterranean fruit fly has been definitely known to occur in Spain since 1860, Almeria grapes were not theretofore known to act as carriers of the pest.

Prior to November 1, 1923, when Foreign Quarantine No. 56 became effective, Almeria grapes had been only superficially inspected upon arrival at the ports of entry in the United States. After a hearing, further entry of these grapes was prohibited by the Federal Horticultural Board on January 18, 1924, until satisfactory evidence could be presented that the grapes were no longer attacked in Spain by this fruit fly.

A survey made in Spain by an agent of the Federal Horticultural Board in 1927 disclosed that the fruit fly is widely distributed in practically all fruit sections of that country, so that the situation there did not warrant any modification of the existing restrictions on the entry of Spanish fruit into the United States.

A similar survey of fruit-fly infestation in Argentina disclosed that the northern part of Argentina, the main fruit district of that country, from which exports are usually made, had not been infested by fruit flies, and was so isolated geographically and commercially that the fruit is fairly well protected from invasion by the insects. As a result the Department authorized the continuance of entry of fruits from these districts on certain conditions.

A survey of the Canary Islands disclosed that the important tomato crop on these islands was not infested by fruit flies, and permits are therefore being issued for entry of tomatoes from these islands, subject to inspection at the ports of entry.

The Mexican bean beetle (*Epilachna corrupta*) was made the object of a domestic quarantine (No. 50) promulgated April 8, effective May 1, 1921, but revoked July 23, 1921. This beetle which had been an important enemy of the bean crop for many years in Arizona, Colorado, and New Mexico, and had been supposed to be climatically limited to that general region, suddenly developed in Alabama, supposedly carried there in shipments of western alfalfa hay. At the request of the authorities of that and other states the quarantine was declared covering the invaded area in Alabama, and an appropriation of $100,000, of which $25,000 was made immediately available, was given to the Bureau of Entomology for the enforcement of this quarantine in coöperation with the Federal Horticultural Board and with the state authorities. As a result of a survey conducted during the spring and summer of 1921, however, it was found that this pest had been disseminated throughout the South and was beyond any hope of extermination or effective quarantine control, and the domestic quarantine was therefore revoked. Since that time the Mexican bean beetle has spread eastward to the Atlantic seaboard and northward to the great bean-producing states of Michigan and New York. Extensive research is being made by the Bureau of Entomology to discover means of controlling this destructive pest.

A domestic quarantine (No. 51) to protect Hawaii from the entry of plant pests from the United States, especially the sugar-cane borer, the alfalfa weevil, the cotton-boll weevil, the papaya fruit fly, and certain insect enemies of the fruit of the avocado, was issued July 22, 1921, effective October 1, 1921, at the request of the Hawaiian authorities. It regulates the movement from the United States to Hawaii, as ships' stores or as baggage or effects of passengers or crews, of sugar cane, corn, cotton, alfalfa, and the fruits of the avocado and papaya. Commercial importations into Hawaii are safeguarded under territorial laws and mail shipments by terminal inspection. Under this quarantine, regulations have been issued providing for inspection at the ports of Hawaii, with respect to ships or vessels from the United States, of ships' stores and baggage and effects of passengers or crews for the purpose of ascertaining whether any of the fruits, vegetables, or other articles covered by the quarantine are contained in such ships or vessels or whether there remains any infestation from such fruits, vegetables, or other articles.

The regulations also provide for necessary disinfection and the posting of warning notices. This quarantine is still in force.

Domestic Quarantine No. 53 against the satin moth was promulgated December 28, 1921, effective January 1, 1922. As originally issued it prohibited the interstate movement to points outside the infested areas in New Hampshire and Massachusetts, of all species or varieties of poplar and willow trees or parts of the same capable of propagation, on account of the satin moth (*Stilpnotia salicis*). This was revised from time to time to cover additional territory. At present the quarantine covers infested areas in Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, and Washington.

A foreign seed or paddy rice quarantine (No. 55) was promulgated July 17, 1923, effective September 1, 1923, and is still in force. It forbids the importation of seed or paddy rice into the United States from any foreign country or locality, with the exception of Mexico under certain conditions, on account of the existence of injurious fungous diseases of rice, including downy mildew (*Sclerospora macrocarpa*), leaf-smut (*Entyloma oryzae*), blight (*Oöspora oryztorum*), and glume blotch (*Melanomma glumarum*), as well as dangerous insect pests. These injurious plant diseases were found to occur on seed or paddy rice in practically all countries and islands where rice is grown, and it was therefore considered advisable to prohibit all foreign importations.

Foreign Quarantine No. 57 on account of the gipsy moth, promulgated June 30, 1924, effective July 1, 1924, forbade, except as provided in conditions and regulations supplemental thereto, the importation of Christmas trees and greens from a designated portion of the Providence of Quebec, bordering on Vermont and northeastern New York. This quarantine was lifted July 1, 1928.

A domestic fruit and vegetable quarantine (No. 58) concerning shipments from Porto Rico which is still in force, was promulgated May 27, 1925, effective after July 1, 1925. It prohibits or regulates the movement from Porto Rico into or through any other territory, state, or district of the United States, of all fruits and vegetables in the raw or unprocessed state, on account of injurious insects, including the West Indian fruit fly *Anastrepha fraterculus*) and the bean pod borer (*Maruca testulalis*).

A domestic quarantine (No. 60) to control the spread of certain injurious insects through the agency of sand, soil, or earth around the roots of plants from Hawaii and Porto Rico, was promulgated February 19, effective March 1, 1926. It prohibits the movement from Hawaii and Porto Rico into or through any other territory, state, or district of the United States, of sand (other than clean ocean sand), soil, or earth, around the roots of plants in order to prevent the spread of white grubs (*Phyllophaga*), Japanese rose beetles (*Adoretus umbrosus* var. *Tenuimaculatus*), and termites or white ants.

Narcissus bulbs, the importation of which is prohibited by the provisions of Quarantine No. 37, became the objects of a domestic quarantine (No. 62) promulgated July 3, 1926, effective after July 15, 1926, which is still in force. The quarantine prohibits, except as provided in the rules and regulations supplementary thereto, the interstate movement of narcissus bulbs from every state in the continental United States and the District of Columbia, on account of certain injurious bulb pests, including the greater bulb fly (*Merodon equestris*), the lesser bulb fly (*Eumerus strigatus*), and the bulb eelworm (*Tylenchus dipsaci*).

This quarantine applies only to the American-grown bulb crop. It involves commercial growers, shippers, and handlers of domestic narcissus bulbs in every state and district of the United States. Under its provisions bulbs may be moved only if after inspection and certification they are found to be free from infestation. If bulbs are found to be infested they are not allowed interstate movement until disinfected or treated under the direction and to the satisfaction of an inspector of the Department of Agriculture. Persons intending to move harvested bulbs interstate are required to make application for inspection as far as possible in advance of the proposed date of shipment.

The attempted eradication of such bulb pests and bulb flies as have recently become established in the United States was one of the major activities of the Federal Horticultural Board during its existence. When the commercial importation of narcissus which was permitted for three years under Amendment No. 2 to Regulation 3 supplemental to notice of Quarantine No. 37, effective January 1, 1923, was discontinued on January 1, 1926, this action was ardently supported by the bulb-growing states. The eradication of such infestations as exist in this country was undertaken by the states, and in order to prevent reinfestation, federal certification is now required under Quarantine No. 62 for the interstate movement of all narcissus, the inspection being made by state nursery inspection officers as collaborators of the federal government.

Over 95,000,000 narcissus bulbs are being grown in the United States at the present time. Since July 15, 1926, it has been required that they must all be inspected twice and certified before interstate shipment is permitted. All but sixteen states grow some narcissus, and in many of them one or more bulb-fly or eelworm infestations have been found.

Regulatory Work of the Bureau of Entomology. The plant regulatory work under domestic quarantines before the creation of the Plant Quarantine and Control Administration, was distributed to the Federal Horticultural Board, and, in coöperation with that Board, to the Bureau of Entomology in the case of some insect pests and the Bureau of Plant Industry in the case of some plant diseases, these Bureaus acting in these instances as agents of the Board.

Under this arrangement, the Bureau of Entomology had been charged with the detailed administration of large regulatory appropriations coming respectively under the quarantines on account of the Mediterranean fruit fly in Hawaii, the European corn borer, the gipsy and brown-tail moths, and Japanese and Asiatic beetles. The control work concerning the Mexican fruit worm had also been placed in the hands of this Bureau.

Mediterranean Fruit Fly and Melon Fly Control. The Mediterranean fruit fly (*Ceratitis capitata*), which attacks all manner of fruit and some vegetables and which is found in southern Europe, Africa, South America, Australia, and other sections of the world, made its appearance in destructive numbers about eighteen years ago in the Hawaiian Islands and threatened to become a serious menace, if introduced into the mainland, to the citrus and deciduous-fruit interests of the southern Pacific Coast and throughout the southern states. It is very injurious wherever it becomes established.

Before special funds were provided by Congress to combat this insect and before the creation of the Federal Horticultural Board, the Bureau of Entomology undertook to make preliminary studies in 1912 in Hawaii in anticipation of an appropriation from Congress. In this work the Bureau had the coöperation of the Hawaiian territorial and the California state governments.

The imminence of this danger led Congress, in an act of August 9, 1912 (37 Stat. L., 292), to appropriate $35,000 to be expended in an attempt to control this fly in the Hawaiian Islands, and thus to a limited extent to reduce the likelihood of its reaching the mainland of the United States. The appropriation became available in August, 1912. The Assistant Chief of the Bureau of Entomology at that time, Dr. Marlatt, visited Hawaii and established a laboratory for local work. The plan of work was to complete the life history study of the insect in relation to the various host fruits and vegetables; to coöperate with the territorial Board of Agriculture in the introduction and establishment of parasite enemies; to effect a local clean-up to lessen the danger of transporting the insect to the mainland on vessels and ships' stores; and to inspect and tag bananas and pineapples which were the only fruits permitted to be shipped from Hawaii to the mainland. Later on, experiments were made on the control of fruit flies by cold storage temperatures. The Federal Horticultural Board, at the same time, carried on the inspection of fruits imported into the United States from Mediterranean and other countries known to be infested with the fruit fly, as a basis for possible quarantine action.

The Plant Quarantine Act of 1912 had a specific provision directing that the quarantine provisions as applying to the Mediterranean fruit fly and to two specified plant diseases should become effective on its passage. Accordingly, as soon as the required hearings could be held, the Secretary of Agriculture promulgated, on September 18, 1912, Domestic Quarantine No. 2. In its original form, this quarantine prohibited the shipment of all fruit and vegetables specified in the notice of quarantine, from the Territory of Hawaii into or through any other state, territory, or district of the United States. In 1913 the Bureau of Entomology made a study of the life history of the melon fly in the Hawaiian Islands, and, as a result, Quarantine No. 2 was revised and amended as Quarantine No. 13 on March 12, 1914, effective May 1, 1914, to protect the United States from both the Mediterranean fruit fly and the melon fly (*Dacus cucurbitae*), which attacks gherkins, tomatoes, and beans.

In its present form Quarantine No. 13 prohibits and regulates the movement from the Territory of Hawaii into or through any other territory, state, or district of the United States of all fruits and vegetables in the natural or raw state, on account of the Mediterranean fruit fly and the melon fly.

This domestic quarantine was enforced by the Bureau of Entomology as the agent of and in coöperation with the Federal Horticultural Board, until June 30, 1928, after which its enforcement was transferred to the newly created Plant Quarantine and Control Administration.

Domestic Quarantine No. 68, relating to the Mediterranean fruit fly in Florida promulgated April 26, 1929, effective May 1, 1929, is discussed on pages 108-17.

A foreign quarantine (No. 56) promulgated August 1, 1923, effective November 1, 1923, prohibits the importation from foreign countries, except under certain rules and regulations, of fruits and vegetables and other possible carriers on account of injurious insects, including the Mediterranean fruit and melon flies.

European Corn Borer Control. The European corn borer (*Pyrausta nubillalis*) is believed to be the most formidable pest of corn which has yet made its appearance in this country. So great is the menace of this pest that Congress has appropriated over thirteen million dollars in the past ten years for its control. Its eradication appears to be hopeless.

The European corn borer is a moth or miller that bores into all parts of the corn plant and also attacks several hundred other plants. It is a native of southern Europe and is believed to have gained entrance into the United States some time in 1909 or 1910, but was not discovered until 1917. Infested broom corn imported from Europe was definitely traced to Everett, Massachusetts, to Amsterdam, New York, to St. Thomas, Ontario, and possibly to Buffalo, New York, where the first infestations of the pest were discovered. From at least three of these focal points of infestation, this pest is spreading in all directions at the rate of from twenty to thirty miles a year, having reached, at the close of the scouting season in 1929, the New England States and the States of Pennsylvania, New York, Ohio, Indiana, West Virginia, Michigan, and New Jersey.

The control measures which were being carried on by the Bureau of Entomology and the Federal Horticultural Board in coöperation with state authorities, private organizations, and individuals, included: quarantines to restrict the movement of carrying products in order to prevent long-distance spread of the pest; scouting to determine the extent of the yearly spread; clean-up of heavily infested areas to determine the possibilities of control under farm methods and management as a means of controlling spread; studies of life history and habits as a basis for methods of control; and introduction of parasites from Europe, the native home of the pest.

In September, 1926, a conference of the International Corn Borer Organization was held in Detroit, which was attended by representatives from the corn belt, and many other sections, and resulted in the appointment of a committee to decide what action would seem most advisable in connection with the control of the European corn borer in the United States. This organization movement and the realization of the seriousness of the corn-borer problem induced Congress to authorize, in an act of February 9, 1927 (44 Stat. L., 1065), and to appropriate, by a joint resolution of February 23, 1927 (44 Stat. L., 1177), $10,000,000 (a smaller sum having previously been appropriated) to be expended by the Secretary of Agriculture in coöperation with state authorities, private organizations, and individuals. In the discretion of the Secretary, no expenditure was to be made under this authority until the states wherein the European corn borer exists had provided necessary regulatory legislation and had appropriated sums adequate for state coöperation.

This fund was used to carry out what is now commonly called the "1927 Spring Clean-up Campaign." The purpose of that campaign was to determine whether, by concerted effort under unified control and uniform procedure, the spread of the insect into new territory could be retarded and the borer population held at such a minimum as would prevent it from inflicting commercial damage to the corn crop in territory already infested.

The campaign was organized along three major lines of activity, namely, an educational program, publicity work, and control operations. The control operations were carried on by the Bureau of Entomology and the Federal Horticultural Board under additional authority conferred by state legislation.

The stipulation in the above-mentioned act concerning the provision of the necessary regulatory legislation by the various participating states, namely, New York, Pennsylvania, Ohio, Michigan, and Indiana, was interpreted to mean legislation requiring the farmers in the clean-up areas to destroy all cornstalks and corn debris in fields, feed lots, barnyards, etc., on or before May 1, 1927. It was also arranged that the states deputize the employees of the United States Department of Agriculture thereby authorizing them to enter private property and, in case this was not properly cleaned within the specified time, to do such work as was necessary, the cost of this to be charged in whole or in part to the property owners.

Provision was made by Congress to compensate the farmers for the extra work involved, and the Secretary of Agriculture issued regulations allowing a maximum of two dollars per acre for extra labor when the farmer cleaned his premises in a satisfactory manner.

The federal appropriation of $10,000,000 became available February 23, 1927, but none of it could be expended until all of the states involved had provided legislation and funds for coöperative work. This condition was not fulfilled until March 14, when the expenditure of this special fund began.

One of the first things given consideration was the purchase of a large quantity of field equipment for this work. As the details preliminary to the award of the contracts were completed in the interval that elapsed between the time the appropriation was made and the date upon which it was certified that the states had provided the necessary legislation, many awards were made for equipment on March 14, and work was started in the field on March 21, 1927.

The several states involved issued regulations governing the clean-up. The control work was divided into five branches: (1) Field operation; (2) engineering and maintenance; (3) advisory and research; (4) accounting, finance, and disbursements; (5) supplies, purchases, and property.

The area to be cleaned up consisted of the entire infested area of Ohio, Michigan, and Indiana, eight counties in western Pennsylvania, and five counties is western New York. There were estimated to be 2,500,000 acres of corn land in this area. The program prepared for this campaign was based on the assumption that the farmers would do all the work on 2,000,000 acres or eighty per cent, leaving the government to do the work on 500,000 acres, or twenty per cent, of this entire area. Equipment for this purpose was accordingly provided.

The first field operation was that involved in a proposal to lend stubble pulverizers and tractors to farmers prior to May 1, to be used largely in fields already planted to small grains in which corn stubble of the previous summer existed. This equipment, consisting of a tractor and pulverizer for each unit, was operated by federal forces, and for this a charge of one dollar per acre was made, such charge to be deducted from any extra labor fee that might subsequently become due the farmer.

All farmers in the infested territory were visited at least once before May 1 and advised as to what would be expected of them in the way of cleaning up their fields, and copies of the regulations of the Secretary of Agriculture, setting forth the requirements to be fulfilled to receive the extra labor fee, were mailed to the farmers in the " clean-up " area.

The approved methods of work used in this campaign were: Stubble pulverizing; plowing cleanly; polling, raking, and burning; machine burning; and hand picking of stalks and debris.

At the beginning of the work a proclamation was issued to the farmers of the clean-up area stating that they would be given until May 1 to clean up their corn-fields, but that after that date, the state and federal forces, under state authority, would step in and finish the operation where necessary. On account of the continued wet weather the time limit for the completion of the farmers' work was extended from May 1 to May 15, and exemptions were necessitated in some cases in areas where less than one per cent infestation occurred. On May 16 compulsory work was started. Wherever it was apparent that the farmer was trying earnestly to do his work and had been handicapped by weather conditions, a further extension of time was allowed.

Early in June the final inspection was started, and it became necessary to appoint additional inspectors to determine the fees for extra labor due the farmers. During the campaign the federal and state authorities were in touch with 202,338 farms in which there were 2,505,005 acres of corn. In all, 185,000 farms satisfactorily passed inspection. The maximum number of employees engaged at any one time was 7000, who were working over an area of 35,000 square miles.

The clean-up campaign was a control experiment to reduce the number of corn borers in the infested area and slow down or prevent the natural spread of the pest. It resulted in a great reduction of the number of borers in the clean-up area, there being an average of ninety-eight out of every one hundred destroyed, and it held the infestation in 1927 to just about the same intensity as it was in 1926. Where the thinly infested border of the infested area was thoroughly cleaned up, the natural spread was slowed down but not prevented. Where this border infestation was not thoroughly cleaned up, considerable spread occurred. There were many direct and indirect results of the campaign, such as its far-reaching educational value, the demonstration of the fact that " it could be done," and that such unprecedented coöperation was possible.

The European corn borer was made the object of a Domestic Quarantine order (No. 36) promulgated September 25, 1918, which took effect October 1, 1918. It covered the then known infested area in Massachusetts, and it prohibited the movement therefrom, interstate, of corn fodder and cornstalks whether used for packing or otherwise, and green corn, roasting ears, corn on the cob, or corn cobs. A new quarantine (No. 43) to prevent the interstate shipment of carriers of the corn borer, which revised and superseded No. 36, was promulgated March 29, 1920, against Massachusetts, New Hampshire, New York and Pennsylvania, applying only to such portions of those states as were then or which later became infested. A greatly enlarged list of specified articles was covered in this new quarantine.

After frequent amendments, necessitated from time to time by the spread of this pest to new plants and new areas, the European Corn Borer Quarantine No. 43 now regulates the movement interstate to any point outside the quarantined area of: (1) Corn and broom corn, all sorghums, Sudan grass, celery, green beans in pods, beets with tops, rhubarb, oat and rye straw, cut flowers or entire plants of chrysanthemum, aster, cosmos, zinnia, hollyhock, and cut flowers or entire plants of gladiolus and dahlia, except bulbs without stems, from Rhode Island and from infested areas in Maine, New Hampshire, Massachusetts (eastern section), Connecticut (eastern section), and from Fishers Island in Suffolk County, New York; and (2) corn and broom corn, all sorghums and Sudan grass from infested areas in Vermont, New Hampshire (western section), Massachusetts (western section), Connecticut (northern section), New York, New Jersey, Pennsylvania, Ohio, Michigan, Indiana, and West Virginia.

As the possible spread of this pest through artificial means is an important factor, all vehicles leaving the quarantined areas are stopped at the border. Inspection of this vehicular traffic varies in its operation. The passenger carrying automobile is the vehicle most concerned in this inspection work. Auto-trucks and horse-drawn wagons are also included. Steamboats and river-boats also constitute great possible agencies for spreading infestation and are carefully watched.

A foreign quarantine (No. 41) against the importation of possible carriers of the European corn borer, which was enforced by the Federal Horticultural Board, was promulgated February 21, 1920.

Gipsy Moth and Brown-tail Moth Control. The gipsy moth (*Porthestria dispar*) has received continuous attention by the Department of Agriculture since its introduction into New England about 1868, and specific appropriations for its study and control by the Bureau of Entomology have been made since 1897. The brown-tail moth (*Euproctis chrysorrhoea*) was first discovered in 1897 in Somerville, Massachusetts, having been imported on rose bushes from Holland.

The gipsy moth spreads by the dropping of caterpillars from trees on vehicles and pedestrians. The brown-tail moth spreads by flight in the month of June. Both of these pests are general defoliators and are very destructive to ornamental, fruit, and forest trees. The gipsy moth infests the greater part of the New England States, the infested territory being divided, for purposes of control, into "generally infested" and "lightly infested" areas. The brown-tail moth infests a much smaller area, including parts of Maine, New Hampshire, and Massachusetts.

The gipsy moth was mentioned for the first time in an appropriation act of April 23, 1897 (30 Stat. L., 4). In 1906, ravages of these insects were so alarming that a specific appropriation of $82,500 was made in an act of June 30, 1906 (34 Stat. L., 696), " to enable the Secretary of Agriculture to meet the emergency caused by the gipsy moth and brown-tail moth," and energetic work was begun in that year as soon as the appropriation became available. Headquarters were established in Boston, and an expert and a large force of workers were employed. In 1907, $150,000 were appropriated, and since then special appropriations for combating the spread of these insects have been made almost every year, a total of over seven and one-half million dollars having been appropriated for this purpose in the twenty years that followed. The New England States and New York and New Jersey in 1925 and 1926 appropriated over seven hundred thousand dollars each year for the same purpose.

As a measure of domestic control of these two pests, Quarantine No. 4 was promulgated November 5, 1912, regulating the movement, in interstate commerce, of plants and plant products in certain districts of New England. This quarantine was amended and replaced from time to time to meet newly developed conditions. Thus, Quarantine No. 4 was replaced by No. 10 on June 24, 1913. This was superseded by No. 17, promulgated July 3, 1914; No. 17 was replaced by No. 22, promulgated May 20, 1915. No. 22 was replaced by No. 25, May 22, 1916; No. 25 by No. 27, June 8, 1917; No. 27 by No. 33, July 1, 1918; and No. 33 by No. 45 on May 28, 1920, effective July 1, 1920.

Quarantine No. 45, which is now in force, covers all the New England States, and regulates the movement interstate of certain listed plants and plant products, and stone and quarry products from the infested areas except when inspected and certified as free from these insects. The unrestricted movement of the above products from one point to another within the same area is allowed, but certification is required for the interstate movement of these products from the generally infested to the lightly infested area, just as is movement interstate from the lightly infested to points outside either area.

During the period from 1897 to 1928, the Bureau of Entomology, in coöperation with the state authorities, and after 1912, in coöperation also with the Federal Horticultural Board, dealt with this problem by making studies of the habits of the gipsy moth and brown-tail moth; the relation of fungus and other diseases affecting the moths to their control; the effect of secondary insects on trees that have been defoliated by the gipsy moth; the means by which the gipsy moth spreads to new territory; the introduction of natural enemies of the moths; the testing of insecticides and materials for banding trees; studying the relation of silviculture to gipsy-moth control; scouting work to determine the area infested by these moths for the purpose of preventing their spread; and the application of exterminative measures. After the creation of the Federal Horticultural Board that service, with the coöperation of the Bureau of Entomology, maintained the inspection and quarantine service of nursery, forest, and quarry products against these insects.

The result of these activities on the part of the Bureau of Entomology, the Federal Horticultural Board and the state authorities and, more recently, the Plant Quarantine and Control Administration has been that the spread of these moths through the northern orchards and forests has been prevented, that their infestation has been kept within a comparatively small area, and that their number is being gradually reduced.

Japanese Beetle Control. The Japanese beetle (*Popillia japonica*) was first discovered in this country near Riverton, New Jersey, by inspectors of the New Jersey Department of Agriculture in 1916, having probably been brought over directly from Japan in a shipment of iris roots. In 1917 the Bureau of Entomology began to give active attention to this pest; in 1919 a domestic quarantine against it was promulgated; and in 1919 and 1923 special items were included in the deficiency appropriation acts for the prevention of the spread of this insect.

Special items " to enable the Secretary of Agriculture to meet the emergency caused by the spread of the Japanese and Asiatic beetles " have been inserted each year since 1926 in the annual agricultural appropriation acts.

The beetles attack fruit trees, such as apple, grape, plum, cherry, peach, and pear; various shade trees, such as the elm and maple; and sweet and field corn and some other vegetation. They defoliate the trees and eventually destroy them.

The spread of the Japanese beetle since its discovery in 1916 has been rapid. Within two years it covered an area of six square miles, and by the end of June, 1928, the infested area extended to about twenty-one thousand square miles into New Jersey, and parts of New York, Connecticut, Pennsylvania, Delaware, Maryland, Virginia and the District of Columbia. The beetles are spread by flight and carried, between June 15 and October 15, in the shipments of certain crops, into which they crawl, such as sweet corn, cabbage, lettuce, grapes, and forage crops, and in straw, soil, and compost.

The Bureau of Entomology, in coöperation with the Federal Horticultural Board, attacked the problem of controlling the Japanese beetle by enforcing quarantine restrictions; by making biological and ecological studies of the insect; by studying its physiological activities and the chemotropic and phototropic response of the beetle; by investigating arsenical compounds and arsenical substitutes as insecticides; by studying control of the beetle in soil; and by the introduction of parasites. Thorough and timely spraying appears to afford excellent protection to fruit and ornamental trees.

The domestic Japanese Beetle Quarantine No. 35 was promulgated September 24, 1918, effective June 1, 1919. The original order regulated the movement interstate to any point outside the townships of Delran, Chester, and Cinnaminson in the County of Burlington, New Jersey, of sweet or sugar corn only. The enforcement of this quarantine was entrusted to the Bureau of Entomology in coöperation with the Federal Horticultural Board and with officers of the State of New Jersey.

It was soon discovered that not only sugar corn, but other farm products and greenhouse stock, soil, etc., were carriers of either the beetle or the grubs, and as the infested area was growing rapidly, Quarantine No. 35 was superseded by Quarantine No. 40, promulgated February 26, 1920. No 40 was superseded by No. 48, promulgated September 30, 1920, effective October 1, 1920, and this was frequently revised from time to time to cover the newly discovered host plants and other objects and the increased infested territory.

It is recognized that the eradication of this pest is impossible, and that it will ultimately spread widely in the United States. The main hope for the future is in natural enemies or by the application of more effective methods of control than any which have so far been devised. Its natural spread by flight, which cannot be controlled, seems to be from five to ten miles per year. The object of the quarantine restrictions is to restrain its spread by long jumps on carriers such as farm and truck crops and fruits and florists' and ornamental stock.

Quarantine No. 48, as revised and amended and now in force, regulates the movement interstate to any point outside the State of New Jersey and the regulated areas of Pennsylvania, Delaware, New York, Connecticut, Massachusetts, Maryland, Virginia, and the District of Columbia of: (1) Certain fruits, vegetables, and other farm products, between June 15 and October 15 inclusive, and (2) nursery stock, sand, soil, earth, peat, compost, and manure throughout the year.

State quarantines similar to the above, but restricting intrastate shipments, have also been promulgated and are being enforced by state officers in the infested states.

Mexican Fruit Fly Control. The Mexican fruit fly (*Trypeta ludens*) has long been known to exist in Mexico, where it infests a variety of fruits, particularly grapefruit, oranges, mangoes, peaches, and guavas. In order to prevent its possible introduction into this country, Foreign Quarantine No. 5 was promulgated January 15, 1913, which is still in force. This foreign quarantine forbids the importation of oranges, sweet limes, grapefruit, mangoes, achras sapotes, peaches, guavas, and plums from Mexico.

While this quarantine has been enforced as strictly as possible with the inspectors available at all Mexican border ports, infested fruit has occasionally been smuggled across for local consumption. Until recently, there was little fruit culture on the American side of the lower Rio Grande valley and the pest had therefore not made its appearance there. In the past few years a considerable successful grapefruit industry has developed in this region of Texas, and in May, 1926, the pest was reported to be widely present in the grapefruit orchards in Cameron and Hildago counties of Texas. Following this discovery, the Bureau of Entomology and the Federal Horticultural Board, in coöperation with the Texas Department of Agriculture and the local interests, secured the immediate clean-up and disposal of all hang-over citrus and other fruits in the district which could serve as hosts to carry the insect over to the succeeding year. Similar measures were taken on the Mexican side opposite Brownsville by the coöperation of public spirited citizens and local Mexican authorities.

The work of clean-up, which had been started by representatives of the Agricultural and Mechanical College of Texas and by the Texas Department of Agriculture, immediately following the discovery of the pest was carried forward by a detail of fifteen inspectors from the pink bollworm force of the Federal Horticultural Board, and these inspectors were placed under the immediate direction of the Texas State Department of Agriculture. On September 1 a fund of $30,733 to continue the work was obtained from the Bureau of Entomology, and the direction of the work from that time on was turned over to a scientist of that Bureau, who coöperated with the State Department of Agriculture. On the assembling of Congress steps were taken to secure the inclusion in the first deficiency bill of $100,000 to continue the work for the balance of the fiscal year. This appropriation became available December 22, 1927, and the work continued under that direction until it was taken over by the Plant Quarantine and Control Administration.

An effective means of dealing with this pest was the maintenance of a non-fruit zone during the summer of 1927 to starve the insects. In this project every effort was made by local orchard owners to comply with all the provisions of the quarantine and the eradication program, and also to prevent the further smuggling of Mexican fruit across the border, from which the fruit worm infestation seems in part at least to have arisen.

During the fiscal year ending June, 1928, the operations of the Bureau of Entomology and the Federal Horticultural Board, with the coöperation of the officers of the Texas State Department of Agriculture and of citizens of the infested district, included: (1) The completion of the enforcement of the non-fruit period from July 1 to September 30; (2) the inspection and certification of citrus fruit for the winter shipping period, October to February, inclusive; and (3) the enforcement, again, of the non-fruit period beginning March 1.

On August 10, 1927, a domestic Mexican fruit worm quarantine (No. 64) was promulgated, prohibiting, except as provided in rules and regulations supplemental thereto, the interstate movement of host fruits of all varieties in the raw or unprocessed state from the regulated area of Texas on account of this pest. The Mexican fruit fly mentioned in Quarantine No. 5 is the parent of the Mexican fruit worm referred to in Quarantine No. 64.

The enforcement of the quarantine restrictions and the drastic clean-up and eradication work appear to have prevented any reappearance of this fruit fly in the Texas district, and the very large crop of 1927-28 was harvested without the discovery of a single infested fruit.

Regulatory Work of the Bureau of Plant Industry. As the Bureau of Plant Industry carries on the plant pathological work of the Department of Agriculture among its other functions, the quarantine and control work on account of some of the plant diseases was entrusted to that Bureau in coöperation with the Federal Horticultural Board, before the reorganization in 1928.

The most important cases of this kind relate to the white pine blister rust and the black stem rust.

White Pine Blister Rust. The white pine blister rust (*Cronartium ribicola*) was first introduced with importations of nursery stock into the United States about the year 1897, and continued to be so imported without restriction until the promulgation of Foreign Quarantine No. 1, which was enforced by the Federal Horticultural Board.

The disease attacks five-needled pines of all ages, and also currant and gooseberry plants. It occurs throughout Europe, where it causes enormous losses, and in Japan, Siberia, and western Canada. The pine disease may be present in the pine for two or three years before giving a visible demonstration. This long incubation period of the mycelium in the tissue, without external symptoms other than the swelling of the bark, makes it difficult or impossible to detect and eliminate the diseased plants by inspection. It cannot be destroyed by fumigation. The disease is spreading so rapidly and extensively that it threatens the existence of this important timber tree in all parts of the country.

Since 1910 the Bureau of Plant Industry has been actively engaged in the work of studying and endeavoring to control the spread of this disease. Prior to June 30, 1928, this bureau, in coöperation with the Federal Horticultural Board and with the regulatory authorities of the pine-growing states, also administered the regulatory activities connected with the enforcement of the federal quarantine. With the reorganization these activities were transferred to the Plant Quarantine and Control Administration.

The extension of the white pine blister rust to various parts of the United States caused the promulgation on April 21, 1917, of a domestic quarantine (No. 26), effective on and after June 1, 1917, which quarantined all the states east of and including Minnesota, Iowa, Missouri, Arkansas, and Louisiana, and prohibited the interstate movement to points outside this area of all five-leafed pines and currant and gooseberry plants. The quarantine order further provided that no five-leafed pines or black currant plants should be moved or allowed to move interstate to points outside the area comprising Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, and New York. The quarantine was enforced by the Bureau of Plant Industry in coöperation with the Federal Horticultural Board and state authorities.

Quarantine No. 26 was amended by Quarantine No. 54, promulgated March 1, 1922, and the latter was amended March 2, 1923, to include the State of Washington. Quarantines No. 26 and 54 were succeeded by No. 63 promulgated August 27, 1926, prohibiting or restricting the interstate movement of five-leafed pines and currant and gooseberry plants throughout the United States. A revision of February 17, 1927, corrected minor errors in No. 63 so that Quarantine No. 63 prohibited, except as provided in the rules and regulations supplemental thereto, the interstate movement from every state in the continental United States and the District of Columbia of five-leafed pines, or of currant and gooseberry plants, including cultivated or wild or ornamental sorts, on account of the white pine blister rust. A revision of July 31, 1928, made important changes in these restrictions.

The general aim of this control work is the systematic local segregation of five-leafed pines and currants (*Ribes*) on areas best suited to their respective production, and the general eradication of black currants (*Ribes nigrum*) because of their high susceptibility to infection, great pine-infecting power, and small economic importance.

Black Stem Rust of Wheat. Black stem rust of wheat is a plant disease which attacks wheat, oats, barley, rye, and many wild and cultivated grasses. For a number of years prior to 1918 the Bureau of Plant Industry conducted a careful survey to determine the relationship of the common barberry to the destructive epidemics of black or stem rust of wheat that prevailed in the spring-wheat area. This survey demonstrated that the common barberry (*Berberis vulgaris*) is one of the important factors in the development of serious rust epidemics, if not the only factor. This conclusion was supported by experiences in Denmark, where the common barberry was eradicated and no rust epidemics subsequently occurred. It was found at the same time that the Japanese barberry is not a host of the wheat rust disease and is therefore not objectionable.

Having ascertained these facts the Department of Agriculture conducted a systematic campaign of education to bring to the attention of persons in the spring-wheat area of the upper Mississippi Valley the direct relationship which the common barberry has to injuries of the wheat crop, in the hope that an immediate and thorough eradication of the common barberry might be secured throughout this area.

In this campaign of eradication, the nurserymen generally were asked in a circular letter dated April 4, 1918, to coöperate with the Department of Agriculture by submitting to the Federal Horticultural Board signed pledges not to ship common barberry plants into or within the states of Ohio, Michigan, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Nebraska, North Dakota, South Dakota, Montana, and Wyoming. By this means it was hoped voluntarily to put into effect what was substantially a complete quarantine as to the movement of the common barberry into the region to be protected.

The responses were generous, but it was deemed advisable to give this campaign greater efficiency by issuing, April 15, 1919, after a stated public hearing, Domestic Quarantine No. 38, effective May 1, 1919, and amended December 26, 1922. In promulgating this quarantine it was pointed out that the susceptible varieties of barberry and the related mahonias had been very largely eradicated in the above-mentioned states and in Colorado, and therefore the order quarantined all other states of the Union, including the District of Columbia, and ordered that no plants of the species *Berberis* and *Mahonia* enumerated in the quarantine shall be moved or allowed to move interstate to points outside of the quarantined areas. The restrictions did not apply to the Japanese barberry or the Japanese mahonia.

Until June 30, 1928, this quarantine was enforced by the Bureau of Plant Industry with the coöperation of the Federal Horticultural Board.

Creation of the Plant Quarantine and Control Administration. On July 1, 1928, a reorganization took place in the Department of Agriculture which resulted in the abolition of the Federal Horticultural Board, and the transfer of its functions and of the plant quarantine and control activities of the Bureau of Entomology and the Bureau of Plant Industry, to a newly created unit entitled the Plant Quarantine and Control Administration.

In this reorganization two main purposes were in view: (1) Better plant control administration, by bringing together into one unit all the activities of the Department of Agriculture which deal with the regulation and control of movement of plants and plant products on account of insect pests and plant diseases; and (2) relief for the research Bureaus of Entomology and Plant Industry from the growing volume of regulatory duties of this nature.

The plans for this reorganization had been fully worked out by those concerned, under the direction of the Secretary of Agriculture during the year preceding the change, and the details of the same were incorporated in the estimates of the Secretary of Agriculture for these services for the fiscal year 1929. The reorganization as indicated in these estimates was given approval in the agricultural appropriation act of May 16, 1928 (45 Stat. L., 539, 565), which took effect July 1, 1928. This provision of the appropriation act is the only legal authorization for the reorganization that has been effected.

During the period of the Federal Horticultural Board's existence, from 1912 to 1928, its original functions were considerably broadened and enlarged both by amendments to the act and by related legislation of Congress. From time to time special appropriations were made by Congress for the control or extermination of newly established plant enemies. These increased activities necessitated occasional reorganizations and the employment by the Board of additional scientists, investigators, and other persons.

At the time this Board was superseded by the Plant Quarantine and Control Administration the work of the Board was organized into a central administration, a Foreign Plant Quarantines Branch, and a Domestic Plant Quarantines Branch.

The central administration consisted of the members of the Board, one of whom was Chairman and another Vice Chairman. There was also an administrative Officer who was Assistant to the Chairman, and a Junior Administrative Assistant. In the reorganization, the central administration consists of the Chief, an Assistant Chief, a Business Manager, an Executive Assistant, and an Informational Officer. There is also an Advisory Board consisting of representatives of the Bureaus of Entomology and Plant Industry who were members of the Federal Horticultural Board at the time of the reorganization.

The Foreign Plant Quarantines Branch of the Federal Horticultural Board at the time of the reorganization comprised a Principal Entomologist in Charge, an Import Division, a Port Inspection Division with field headquarters in fourteen states and in Porto Rico, a Mexican Border Inspection Division, with headquarters in Arizona, California, and Texas, and a Quarantine Station in the District of Columbia. This organization was not materially altered by the reorganization.

The Domestic Quarantines Branch at the time of the reorganization consisted of a Senior Plant Quarantine Administrator in Charge; a division for Eradication of Cotton Pink Bollworm and Thurberia Weevil with headquarters in San Antonio, Texas; and a division for Date Palm Scale Eradication, with headquarters in Indio, California.

The work of this branch was very much enhanced by the reorganization on account of the transfer of functions from other bureaus to the newly created Administration. These transferred functions comprised the quarantine and control work formerly carried on by the Bureau of Entomology with the cooperation of the Board concerning the Mediterranean fruit fiy, the European corn borer, the gipsy moth and brown-tail moth, and the Japanese beetle; and the quarantine and control work similarly carried on by the Bureau of Plant Industry concerning the white pine blister rust and the black stem rust of wheat. This transfer of functions involved the transfer of the personnel engaged in this work from these two bureaus to the Plant Quarantine and Control Administration.

From July 1, 1928, until December 1, 1929, Dr. Charles L. Marlatt occupied the dual position of Chief of the Bureau of Entomology and Chief of the Plant Quarantine and Control Administration. On December 2, 1929, Dr. Lee A. Strong assumed the latter office, Dr. Marlatt retaining the other position.

Since the creation of the Plant Quarantine and Control Administration, revisions have been made of the plant quarantines and regulations then in force. New quarantines have been promulgated and regulatory activities have been undertaken by the Administration concerning two plant diseases known as Woodgate rust (Quarantine No. 65), and the phony peach disease (Quarantine No. 67); and concerning two insect pests, namely, the Asiatic beetle and Asiatic garden beetle (Quarantine No. 66) and the Mediterranean fruit fly (Quarantine No. 68). These are discussed in the chapter on activities.

CHAPTER II

ACTIVITIES

The functions of the Plant Quarantine and Control Administration are to enforce the following acts: The federal Plant Quarantine Act of August 20, 1912, as amended; the Insect Pest Act of March 3, 1905; the provision of the act of March 4, 1915, for terminal inspection; the provision of the act of October 6, 1917, concerning the Mexican Border inspection and control service; and the provision of the act of May 11, 1926, for export certification of plants.

The Plant Quarantine Act of 1912 provides for the regulation of the importation of plants and plant products, including nursery stock, fruits, vegetables, cotton, and other plants and plant products necessary to exclude new and dangerous plant pests; the movement within the United States of plants or plant products or other articles necessary to prevent the spread of new plant pests which have more or less limited foothold; and the promulgation and enforcement of quarantine measures and the conduct of control activities for preventing the introduction and spread of insect pests and plant diseases. It also has a provision added by amendment, giving the Secretary of Agriculture authority, which has been delegated to the Administration, to regulate the movement of plants and plant products from and into the District of Columbia, and to control injurious plant diseases and insect pests within the District, functions which in the states are exercised by the state authorities.

The Insect Pest Act of March 3, 1905, prohibits the importation or interstate transportation of insect pests or the use of the United States mails for that purpose. It is enforced by the Administration in coöperation with the Post Office Department.

The Terminal Inspection Act of 1915 is also enforced with the coöperation of the Post Office Department. It provides, under certain conditions, for terminal inspection of plants and plant products transmitted through the mails.

The act of October 6, 1917, providing for the Mexican Border inspection and control service, authorizes the Secretary of Agriculture to make surveys and to coöperate with the states concerned in efforts for the extermination of the pink bollworm.

The act of May 11, 1926, authorizes the Secretary to inspect and to certify plants and plant products offered for export to foreign countries.

The enforcement of these laws involves administrative, technical, and scientific activities in Washington, at field headquarters, and at field stations. The general direction of the work is centered in Washington. In some cases subdivisions of the work are directed from field headquarters and in others from the central office. The quarantine inspection and the control activities are mainly carried on in the field.

The Plant Quarantine and Control Administration, with the aid of an advisory Federal Plant Quarantine Board, and upon approval of the Secretary of Agriculture, is entrusted with the enforcement of quarantines prohibiting or regulating the importation or the interstate movement of plants and plant products and the establishment and maintenance of quarantine districts within the United States for the purpose of preventing the spread of insect pests or plant diseases which may have gained a local foothold. It coöperates with the states in measures looking to the extermination of insect pests and plant diseases.

Plant quarantine restrictions and regulations are imposed only when imperative needs arise. The necessity for these restrictions in the case of any plant or group of plants or of plant products or other potential carriers is usually presented to the Plant Quarantine Administration by the Bureau of Entomology, the Bureau of Plant Industry, or some other bureau in the Department of Agriculture. Whenever restrictions are proposed they are considered in conferences between the Administration, the Federal

Plant Quarantine Board, and Department specialists representing every phase of plant production and distribution. Recommendations are then made to the Secretary of Agriculture, who, before approving and promulgating the quarantine restrictions, holds public hearings and obtains the advice of the Director of Regulatory Work of the Department of Agriculture.

The plant quarantine and other restrictive orders are prepared by the Plant Quarantine and Control Administration and approved and promulgated by the Secretary of Agriculture. The rules and regulations accompanying these orders are prepared and published by the Administration. Whenever the issue of such orders affects the duties of postmasters and customs officers, notices or instructions are issued by an Assistant Postmaster General and the Commissioner of Customs, respectively. Notices of quarantines and other restrictive orders are also sent by the Secretary of Agriculture to common carriers concerned, and to the general public through the newspapers. All these orders, rules, regulations, instructions, and notices are published in the Service and Regulatory Announcements, which are usually issued every three months.

The penalties for violations of provisions of the Plant Quarantine Act of 1912 are fixed in the act to be " a fine not exceeding $500 or by imprisonment not exceeding one year, or both such fine and imprisonment, in the discretion of the court." United States attorneys are required by this act to prosecute diligently any violations of the act which are brought to their attention by the Secretary of Agriculture or which come to their notice by other means.

The technical and scientific work of the Administration may be divided into five major subjects: (1) Regulation of plant importation; (2) domestic plant quarantine and control; (3) administration of the provision of the act of March 4, 1915, for terminal inspection; (4) inspection and certification of plants and plant products for export; and (5) plant quarantine and control in the District of Columbia.

Regulation of Foreign Plant Importation. With regard to the entry of plants, plant products, and insects from foreign countries and our insular possessions the Plant Quarantine and Control Administration exercises regulatory control under authority of the above-mentioned acts of 1912, 1905, and 1917.

Foreign Plant Quarantines. The Department of Agriculture, under the act of 1912, has power to establish, when desirable, quarantines against the entry of plants and plant products from foreign countries and from our insular territories; to require foreign certification as to freedom from disease or insect infestation of plants and plant products as a condition of entry; and to distribute to the several state officers exact information in regard to the origin, arrival, and destination of all importations of plants and plant products.

The activities carried on under this head include: Drafting, revising, and enforcement of foreign quarantines and regulatory orders, under the act of 1912; issuance of permits for entry; and inspection and disinfection for pests of plants and plant products arriving under permits at ports of entry.

Under the authority granted in the act, foreign quarantine orders were promulgated by the Secretary of Agriculture from time to time, nineteen of which were in force on April 1, 1930. These are designated as follows: Quarantine No. 3, potatoes; No. 5, Mexican fruits; No. 7, five-leafed pines, Ribes and Grossularia; No. 8, cotton seed and cotton-seed hulls; No. 12, seeds of avocado or alligator pear; No. 15, sugar cane; No. 19, citrus nursery stock; No. 20, European pines; No. 24, Indian corn or maize and related plants; No. 28, citrus fruits; No. 29, sweet potato and yam; No. 31, banana plants; No. 34, bamboo; No. 37, nursery stock, plants, and seeds; No. 41, European corn borer; No. 44, stocks, cuttings, scions, and buds of fruits; No. 55, seed or paddy rice; No. 56, fruits and vegetables; and No. 59, flag smut. Of these the most important and far-reaching in its scope is "Quarantine No. 37, Nursery stock, plants, and seeds." All the others relate to much smaller groups, or to individual plants, plant products, or plant pests.

Under the Quarantine Act commercial importations are only permitted if coming from countries recognized as having official inspection and certification systems. Nursery stock from other countries not so recognized is limited by regulation, and can only be imported for experimental or scientific purposes.

The requirements of the act concerning uncertified imported nursery stock and the special enforcement of foreign and insular domestic quarantines call for inspection at almost any port of entry in the United States. To meet these requirements, the state inspection services have to be largely utilized, the state officers having been given a federal status by their appointment as collaborators of the Plant Quarantine and Control Administration at nominal salaries. In some instances customs officers of the Treasury Department act as quarantine inspectors, and much assistance is rendered by the Post Office Department in cases where foreign nursery stock arrives through the mails.

The field work in connection with the enforcement of the nineteen foreign plant quarantines and the regulatory orders issued under the Plant Quarantine Act of 1912, involves: (1) Issuance of permits setting forth conditions of entry of plants and plant products; (2) inspection and, if necessary, treatment of plants and plant products arriving under permit at the ports of entry, and supervision of such disinfection of these products as may be required as a condition of entry; (3) inspection, in coöperation with the Treasury and Post Office Departments, of parcel post and express packages containing plant material from foreign countries; (4) inspection at ports of entry, in coöperation with the Treasury Department, of ships, including crews' quarters, ships' stores, and baggage of passengers entering the ports from foreign countries and from insular possessions of the United States, for contraband plants, fruits, and other products; (5) field inspection of plants imported under special permit agreement; (6) inspection in the fields, packing houses, and on the docks, and certification of certain fruits and vegetables produced in Hawaii and Porto Rico and destined for shipment to the mainland; and (7) inspection at some ports, of docks and ships' holds used in export flour trade for the presence of insects injurious to flour.

Mexican Border Inspection and Control. An act of October 6, 1917 (40 Stat. L., 374), authorized the Secretary of Agriculture to provide for a Mexican Border inspection and control service as follows:

> On account of the menace to cotton culture in the United States arising from the existence of the pink bollworm in Mexico, the Secretary of Agriculture, in order to prevent the establishment and spread of such worm in Texas and other parts of the United States, is authorized to make surveys to determine its actual distribution in Mexico; to establish, in coöperation with the States concerned, a zone or zones free from cotton culture on or near the border of any State or States adjacent to Mexico; and to coöperate with the Mexican Government or local Mexican authorities in the extermination of local infestations near the border of the United States.

An act of February 16, 1929 (45 Stat. L., 1189, 1216), making appropriations for the Department of Agriculture for the fiscal year ending June 30, 1930, made provision:

> For enforcement of foreign plant quarantines and to prevent the movement of cotton and cottonseed from Mexico into the United States, including the regulation of the entry into the United States of railway cars and other vehicles, and freight, express, baggage and other materials from Mexico, and the inspection, cleaning, and disinfection thereof, including construction and repair of necessary buildings, plants, and equipment, for the fumigation, disinfection, or cleaning of products, railway cars, or other vehicles entering the United States from Mexico, and the inspection, cleaning, and disinfection thereof.

It also made provision "for necessary surveys and control operations in Mexico in coöperation with the Mexican Government or local Mexican authorities."

Quarantine No. 8, cotton seed and cotton-seed hulls, forbids the importation from any foreign locality and country, excepting only the locality of the Imperial Valley, in the State of Lower California, Mexico, of cotton seed (including seed cotton) of all species and varieties, and cotton-seed hulls on account of the pink bollworm. Seed cotton and cotton seed from the Imperial Valley may be entered under permit and regulation.

By authority of these provisions the Plant Quarantine and Control Administration is maintaining a special Mexican Border service at ports in Texas, Arizona, and California, for the enforcement of the quarantine and rules and regulations governing the entry into the United States of railway cars and other vehicles, passengers, and commodities from Mexico. This involves inspection and quarantine activities on the Mexican border similar to those at other ports of entry, including inspection, certification, and fumigation of railway cars from Mexico; inspection of vehicles, baggage, freight, and personal effects of travelers for contraband plants and plant products, in coöperation with the Treasury Department; inspection in the field of cotton grown in the Imperial Valley of Lower California, and of seed cotton and cotton seed at the gins in Mexicali, for the pink bollworm or other injurious insects.

Restriction of Transportation of Living Insects. Over seven years before the enactment of the Plant Quarantine Act, Congress passed what is known as the Insect Pest Act of March 3, 1905 (33 Stat. L., 1269), which prohibits the importation and the interstate transportation of living insects that are injurious to plants, and declares such insects to be non-mailable matter, exception being made in the case of such insects when used for scientific purposes and if transported in accordance with regulations made by the Secretary of Agriculture and approved by the Postmaster General. This act, however, relates only to insects and not to insect-infested or disease-infected plants and plant products. In the enforcement of the provisions of this act there is close coöperation between the Post Office Department and the Plant Quarantine and Control Administration.

Domestic Plant Quarantine and Control. Under the general head of "Domestic Plant Quarantine and Control" are included the following activities: The drafting, revising and enforcing of domestic quarantines and regulatory orders, and the drafting of forms concerning inspection and certification; assisting in the interpretation and correlation of federal and state regulations concerned with interstate movement of plants and other quarantined articles; directing the inspection of plant material in transit in the United States; and coöperating with state authorities in efforts for the extermination or prevention of spread of insect pests and plant diseases which may have gained a local foothold in this country. The Administration has no authority to interfere with the intra-state movement of plants.

On April 1, 1930, there were twenty-two federal domestic plant quarantines in force. These are designated as follows: Quarantines No. 6, date palms; No. 13, Hawaiian fruits and vegetables; No. 16, sugar cane; No. 30, sweet potato and yam; No. 32, banana plants; No. 38, black stem rust; No. 43, European corn borer; No. 45, gipsy moth and brown-tail moth; No. 47, Hawaiian and Porto Rican cotton, cotton seed, and cotton-seed products; No. 48, Japanese beetle; No. 51, United States quarantined to protect Hawaii; No. 52, pink bollworm; No. 53, satin moth; No. 58, Porto Rican fruits and vegetables; No. 60, sand, soil, or earth, with plants from Hawaii and Porto Rico; No. 61, Thurberia weevil; No. 62, narcissus bulbs; No. 63, white pine blister rust; No. 64, Mexican fruit worm; No. 65, Woodgate rust; No. 67, phony peach disease; and No. 68, Mediterranean fruit fly.

In the case of some of the more important of these quarantines Congress has made specific appropriations, and the Administration has organized separate units for carrying on large-scale field operations with the object of controlling or preventing the spread and, in some instances, effecting the extermination of the pests concerned. The large-scale operations for which separate units have been established are concerned with: Date palm scale eradication; pink bollworm; Thurberia weevil; moths (gipsy, brown-tail, and satin); European corn borer; Japanese and Asiatic beetles; the Mexican fruit worm; Woodgate rust; the Mediterranean fruit fly; white pine blister rust; and phony peach disease.

Date Palm Scale Eradication. This activity is concerned with the enforcement of Quarantine No. 6, which regulates the interstate movement of date palms and date-palm offshoots from Riverside County, California, east of the San Bernardino meridian; Imperial County, California; Yuma, Maricopa, and Pinal counties, Arizona; and Webb County, Texas, on account of the Parlatoria scale and the Phoenicococcus scale. Special annual appropriations are made by Congress for the eradication of these scale insects and for the enforcement of quarantine regulations. The eradication work, which is carried on in the states mentioned, with the coöperation of the state authorities, involves scouting to locate infested trees and elimination of the infestation by burning, torching, pruning, or other approved methods.

Under a plan of operation adopted early in 1928 two lines of work are being carried on, reconnaissance surveys in the Imperial Valley of California and in other date-growing areas of the southwestern states, and intensive date-scale eradication operations in the Coachella Valley of California and in the vicinity of Phœnix, Arizona.

The purpose of the reconnaissance work is to locate and map the points at which date palms are grown and to note and clean up any outbreaks discovered by the scouts in the course of such casual inspections as they are able to make of the palms reported. These surveys are followed by intensive examinations of the palms and by the eradication of all Parlatoria infestations discovered. In the areas where intensive eradication work is being carried on, careful and repeated inspections are being made of all palm plantings in an effort to accomplish complete eradication at the earliest possible time.

Pink Bollworm and Thurberia Weevil. The act of October 6, 1917, making provision for the Mexican Border inspection control service, includes authorization " to establish, in coöperation with the states concerned, a zone or zones free from cotton culture on or near the border of any state or states adjacent to Mexico." Annual appropriations have been made for a number of years for the control and prevention of spread of the pink bollworm and the Thurberia weevil.

Domestic Quarantine No. 52, pink bollworm, prohibits, except as provided in the rules and regulations supplemental thereto, the interstate movement from the regulated areas of Texas, Arizona, and New Mexico of: (1) Cotton, including all parts of the plant, seed cotton, cotton lint, linters, and all other forms of unmanufactured cotton lint, gin waste, cotton seed, cotton-seed hulls, and cotton-seed cake and meal; (2) bagging and other containers and wrappers of cotton and cotton products; (3) railway cars, boats, and other vehicles which have been used in conveying cotton and cotton products or which are fouled with such products; (4) hay and other farm products; and (5) farm household goods, farm equipment, and, if contaminated with cotton, any other articles on account of the pink bollworm of cotton (*Pectinophora gossypiella*). This quarantine was amended November 2, 1928, by modifying the regulations with respect to the movement of cotton seed and lint; on May 16, 1929, by releasing a part of Dawson County, Texas, from areas formerly designated as regulated; and on September 30, 1929, to permit shipment of second-cut linters out of the quarantined area under certain safeguards. Quarantine No. 61, Thurberia weevil, has similar provisions concerning the interstate movement of the same kind of commodities from the infested area of Arizona.

The activities of the Administration for the prevention of the spread of the pink bollworm and the Thurberia weevil and to effect their eradication wherever possible are the same for these two pests. They consist of scouting operations to determine the range of infestation; clean-up operations; cotton-seed sterilization; the enforcement of quarantine restrictions on movement of articles covered, including the supervision of vacuum fumigation plants and cotton compressors, inspection of mills, gins, rolling stock, automotive equipment, and other possible carriers of these pests; and the maintenance of road stations on highways to prevent the movement of contraband material to uninfested localities. Field inspection for the Thurberia weevil is carried on by the Bureau of Entomology.

Gipsy, Brown-tail, and Satin Moth Control. Quarantine No. 45, gipsy moth and brown-tail moth, as revised, which covers all the New England States, regulates the movement interstate to any point outside of the quarantined towns and territory, or from points in the generally infested area to points in the lightly infested area, of stone or quarry products, and of certain listed plants and plant products. Provision is made for interstate movement of Christmas trees and greens originating in the lightly infested area. Large annual appropriations have been made for many years " for the control and prevention of spread of the gipsy and brown-tail moths."

Quarantine No. 53, satin moth, as revised November 21, 1928, prohibits the interstate movement to points outside of the infested areas in Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, and Washington, of all species or varieties of poplar and willow trees or parts thereof capable of propagation, on account of the satin moth.

The Plant Quarantine and Control Administration carries on activities for controlling and preventing the spread of the gipsy moth, the brown-tail moth, and the satin moth, in coöperation with officers of all the New England States, New York, and the Dominion and provinces of Canada. The Administration conducts field work to prevent the spread of the moths and to determine the areas to be quarantined, this work consisting of scouting, and treating infested areas by creosoting, clean-up work, and spraying.

The Administration is endeavoring to exterminate the gipsy moth in the present restricted area in New Jersey, and to maintain a barrier zone, twenty to thirty miles wide, along the western border of the New England States and the border of New York from Long Island to Canada, throughout which an effort is being made to locate and exterminate all colonies as a means of preventing the westward spread of the pest. It is enforcing the quarantine restrictions on the movement of nursery stock, stone, quarry, and other products which otherwise might be the means of movement out of the regulated area of the gipsy moth, the brown-tail moth, and the satin moth.

European Corn Borer Control. Quarantine No. 43, European corn borer, as amended, regulates the movement interstate to any point outside the quarantined area, of: (1) Corn and broomcorn (including all parts of the stalk), all sorghums, Sudan grass, celery, green beans in the pod, beets with tops, rhubarb, oat and rye straw as such or when used as packing, cut flowers or entire plants of chrysanthemum, aster, cosmos, zinnia, hollyhock, and cut flowers or entire plants of gladiolus and dahlias, except the bulbs thereof without stems, from Rhode Island and from infested areas in Maine, New Hampshire (eastern section), Massachusetts (eastern section), Connecticut (eastern section), and from Fishers Island in Suffolk County, New York, and (2) corn and broomcorn (including all parts of the stalk), all sorghums, and Sudan grass from infested areas in Vermont, New Hampshire (western section), Massachusetts (western section), Connecticut (western section), New York, New Jersey, Pennsylvania, Ohio, Michigan, Indiana, and West Virginia, on account of the European corn borer. Corn and other restricted articles may be moved into the State of Maine from other parts of the regulated areas only under federal certification. The area regulated under an amendment of February 25, 1929, to Quarantine No. 43, covered 194,581 square miles.

The Agricultural appropriation acts for a number of years have made large annual and some emergency appropriations aggregating millions of dollars, for the control and prevention of spread of the European corn borer. The present activities of the Administration in this field consist of efforts to retard the spread of the European corn borer and enforcement of quarantines against this pest, and, in coöperation with the states concerned, the conduct of clean-up operations in heavily infested areas in order to prevent further long-distance spread of this insect. The enforcement of quarantine restrictions is done both within and at the margin of the quarantine area. During the summer season this enforcement necessitates the maintaining of day and night supervision by quarantine officers of all main roads leading out of the regulated area. The scouting work is done throughout and beyond the known limits of distribution to determine the spread and abundance of the borer.

This work is carried on in coöperation with the state departments of agriculture of all the New England States, New York, New Jersey, Pennsylvania, Ohio, Indiana, Michigan, Illinois, Wisconsin, West Virginia, and Maryland.

For the purposes of demonstration and development and the conduct of experiments in connection with the control of the European corn borer, and for the training of scouts, an experimental farm is maintained at Bono, Ohio, in coöperation with the Bureau of Entomology and the Bureau of Public Roads.

Japanese and Asiatic Beetles Control. Quarantine No. 48, Japanese beetle, as amended January 25, 1929, effective February 15, 1929, regulates the movement interstate from the entire State of New Jersey and the District of Columbia, and from certain areas of Pennsylvania, Delaware, New York, Connecticut, Maryland, and Virginia, of certain fruits, vegetables, and other farm products between June 15 and October 15, inclusive, and of nursery stock, sand, soil, earth, peat, compost, and manure throughout the year, on account of the Japanese beetle. Large annual appropriations are made by Congress "for the control and prevention of spread of the Japanese and Asiatic beetles."

The Asiatic beetle (*Anomala orientalis*) and the Asiatic garden beetle (*Aserica castanea*) are somewhat closely related to the Japanese beetle, and in general correspond with it in larval and adult habits. Their economic importance is largely due to their capacity to injure and destroy lawns and grasslands. The latter is in addition an active leaf feeder and attacks a large range of crop and ornamental plants. Their greatest menace is to lawns and playgrounds.

The Asiatic beetle was probably introduced about 1900 with large importations of nursery stock made by a nursery then existing at New Haven, Connecticut. The time and place of introduction of the Asiatic garden beetle are not definitely indicated. The Asiatic beetles cover a considerable area in northern New Jersey, and Eastern New York, at Harrisburg, Pennsylvania, and in the District of Columbia.

Following a hearing on September 24, 1928, a domestic quarantine (No. 66) was promulgated March 2, 1929, applying to the States of Connecticut, New Jersey, New York, Pennsylvania and Virginia, and the District of Columbia. It restricted the interstate movement from New Jersey and from the regulated areas of Connecticut, New York, Pennsylvania, and Virginia and the District of Columbia of: (1) Nursery, ornamental and greenhouse stock, and all other plants, and (2) sand, soil, earth, peat, compost and manure. This quarantine was lifted March 1, 1930.

The present activities of the Administration consist of efforts to retard the spread of the Japanese and Asiatic beetles by the enforcement of quarantine restrictions with respect to the commerce and movement of articles which might be a means of wide carriage of the pests out of the regulated area. They require the inspection and certification of farm products, nursery stock, and other products likely to carry these pests, and the supervision of such disinfection or treatment as may be necessary to safeguard the movement of such products, and the conduct or supervision of clean-up work in isolated localities where incipient infestations of these pests have been determined. A new feature of the Japanese beetle control has been the utilization of geraniol traps at the isolated points of infestation of 1928, with the purpose of reducing or eradicating the insects.

These activities are carried on in coöperation with officers of the States of Connecticut, Delaware, Maryland, New Jersey, New York, Pennsylvania, and Virginia.

Mexican Fruit Worm Control. The Mexican fruit worm, which infests a variety of fruits and has long existed in Mexico, requires constant attention at the Mexican Border to prevent its entry into the United States. In recent years dangerous infestations have appeared in Texas, which have been dealt with by the Texas State Department of Agriculture, and the Bureau of Entomology and the Federal Horticultural Board. Annual appropriations have been made "for the control and prevention of spread of the Mexican fruit worm, including necessary surveys and control operations in Mexico in coöperation with the Mexican Government or local Mexican authorities."

Quarantine No. 64, Mexican fruit worm, prohibits, except as provided in the rules and regulations suplemental thereto, the interstate movement from the infested area of Texas of fruits of all varieties, on account of the Mexican fruit worm.

The present activities of the Plant Quarantine and Control Administration consist of efforts to prevent reinfestation by the Mexican fruit worm in the lower Rio Grande Valley in Texas and to perpetuate and maintain the eradication results which have already been effected, involving the maintenance of a hostfree period during the summer months; inspection of about 60,000 acres of citrus groves, and certification of fruits leaving the quarantined area; and the enforcement of other regulatory measures necessary to eradicate this pest in the United States.

For almost two years, from June, 1927, to April, 1929, no specimens of the Mexican fruit worm had been found in the lower Rio Grande Valley of Texas, but in the latter month infestations were discovered in two local packing houses, and immediately all permits to ship citrus fruits from the district were canceled.

Woodgate Rust. A dangerous plant disease know as Woodgate rust, which attacks Scotch pine and other hard pines, and which was found to exist in northern New York, was made the object of Quarantine No. 65, promulgated October 23, 1928, effective November 1, 1928. It was slightly amended March 9, 1929. The quarantine prohibits the interstate movement from certain designated counties in New York, of trees, branches, limbs, or twigs of Scotch pine, Canary Island pine, slash pine, Japanese red pine, Corsican pine, western yellow pine, Monterey pine, loblolly pine, or Jersey pine, or any variety thereof, or of any species or variety thereof, or any species or variety of hard pine found to be susceptible to the Woodgate rust.

This disease causes galls or swellings on the trunks and limbs of the trees which it attacks, resulting in the death of the trees or destroying their value for lumber. It spreads from tree to tree without the intervention of an alternate and is therefore very difficult to control.

Mediterranean Fruit Fly Control. The Mediterranean fruit fly is regarded as the worst pest to which fruit and many vegetables can be subjected. It is now firmly established in the Hawaiian Islands, in southern Europe, and in Africa, South America, and other tropical and subtropical sections of the world. In the infested countries great damage is being wrought. The fly can breed in practically all fruits, except watermelons, pineapples, strawberries, lemons, sour limes, and nuts. Of the vegetables, it attacks peppers, eggplants, lima and broad beans, and probably tomatoes. The fly deposits its eggs in the fruit, and these eggs are later hatched into maggots which speedily destroy the fruit which they inhabit.

Until April, 1929, the activities of the Plant Quarantine and Control Administration with regard to the Mediterranean fruit fly were solely concerned with the prevention and regulation of the shipment of host fruits and vegetables from the Territory of Hawaii into or through any other territory, state, or district of the United States, as indicated in Quarantine No. 13; and the prohibition of the importation from foreign countries of host fruits, vegetables, and other possible carriers of this pest, among other injurious insects, as specified in Qauarantine No. 56. These activities are still occupying the attention of the Administration.

On April 6, 1929, an infestation of this pest was discovered at Orlando, Florida. The time and the method of its introduction are unknown. The gravity of its introduction was immediately recognized, as the capital value of the orchards in the states in which the climate for its breeding and spreading is favorable, is about $1,800,000,000, and the annual fruit crop is valued at about $240,000,000. Its control, if once established in these states, would have imposed an enormous burden on the fruit growers.

Immediately upon confirmation of the discovery of this pest the Administration instituted coöperative relations with the state officers in the work of survey, control, and eradication.

An emergency fund of $50,000 was at once released by the State of Florida, and all available state forces were mobilized in efforts looking to eradication. The plant quarantine personnel of the state was put on this work, also the extension service, the technical leaders of the state experiment station and hundreds of citizen volunteers.

Federal assistance was furnished through a transfer of $40,000 from other funds appropriated to the Plant Quarantine and Control Administration and a considerable detail of personnel was transferred to Florida from the forces engaged in the Mexican fruit fly and pink bollworm work of the Administration in Texas. On May 2, 1929, on the recommendation of the Secretary of Agriculture, Congress enacted a Joint Resolution (46 Stat. L., 2) making $4,250,000 immediately available for fruit-fly control and eradication work.

With these funds steps were at once taken by the Administration, in coöperation with the Florida state authorities, to determine the extent of the spread of the fly in Florida or elsewhere, and to eradicate the pest. Pending formal quarantine action, the growers concerned were brought into agreement not to ship any fruit from the known infested groves, and none from the area except under permission of the Florida State Plant Board.

After a preliminary survey of the situation, and as a result of conferences between the Chief of the Plant Quarantine and Control Administration and the State Plant Board at Orlando and later at Gainesville, a state quarantine was promulgated on April 15 covering all of Orange and Seminole counties and part of Lake County, which on that date included all the districts known to be infested by this pest. Subsequently more intensive surveys, carried on up to April 30, led to the discovery that the fly had spread to six additional counties, and by June the infestation had extended northeastward to St. Johns County and southwestward to the Gulf of Mexico near Tampa. Later surveys disclosed infestations in additional sections of the state.

On April 26 the Secretary of Agriculture promulgated Federal Quarantine No. 68 to cover the entire State of Florida, effective immediately as to all areas in Florida which had been determined as infested, and effective May 1, throughout the state. This quarantine prohibited the movement of all host fruits and vegetables and other possible carriers from infested areas, and provided for their movement from other areas under adequate safeguards. On May 16 administrative instructions were issued under this federal quarantine to prohibit movement by any means of host fruits and vegetables from any part of Florida into southern and western states from North Carolina and Tennessee southward and westward including Arkansas, Oklahoma, Arizona, New Mexico, and all states south of them, and also California, Nevada, Utah, Idaho, Oregon and Washington.

A revision of Quarantine No. 68 and regulations was made on June 7, forbidding the reshipment of Florida host fruits and vegetables from northern and northeastern states into territory of the south and west into which direct shipment from Florida was already prohibited.

Before the discovery of the Mediterranean fruit fly at Orlando, between two-thirds and three-fourths of the fruit of that district had moved out of the state, and it was feared that by this means the pest had been widely distributed. Much of this fruit had been consumed, but a considerable portion was still on sale and in storage, and the authorities of the cotton belt states, where the danger was greatest, were urged to have inspections made of all Florida fruit in markets and storage, so that any infested shipments could be destroyed and the containers and storage places cleaned up.

On May 15, a conference of quarantine officers in the cotton states was held at Atlanta on the call of the Administration and plans were made for federal coöperation in clean-up and control work in these states. About $200,000 were contributed for this purpose from the special fruit-fly appropriation. The conference requested the state extension services of all the states from Texas and Oklahoma eastward to join in the effort to locate and inspect Florida fruit, which coöperation was obtained. This work resulted in the discovery of fourteen shipments of infested fruit distributed in ten localities in five Southern states, and two instances in New York and one in Ohio.

Early in the campaign steps for the eradication of the pest were taken by the Administration and all the coöperating agencies. The method of eradication adopted included: (1) Intensive inspections which were ultimately extended throughout Florida and, as a follow-up movement, inspection of Florida products throughout the cotton-belt states; (2) the clean-up in Florida of infested properties as rapidly as found; (3) the spraying of such infested properties and adjacent properties with sweetened poison bait to destroy adult flies; (4) the destruction of all summer ripening fruit and the prohibition of summer ripening vegetables in both infested and surrounding protective zones, in order to maintain a summer host-fruit and host-vegetable-free period; and (5) in the infested zones, the removal of all citrus and other host fruits or host vegetables throughout the year prior to their reaching a stage of maturity susceptible to the fly, and as to host vegetables, the prohibition of planting such vegetables "until the State Plant Board, with the approval of the U. S. Department of Agriculture shall determine that all infestation in such zone has been eliminated and that the restrictions of this paragraph shall no longer remain in force with respect thereto."

This control and eradication work was carried on through the coöperation of the Plant Quarantine and Control Administration, the Bureau of Entomology, and other services of the national Department of Agriculture, the State Plant Board of Florida and other state authorities, fruit growers associations, and individual volunteer workers.

The increase in the infested area as determined from week to week, necessitated early in June, a reconsideration of the entire eradication program. It was estimated that the various types of work required to deal with the eradication problem would cost approximately $15,500,000 for the fiscal year 1930, of which a balance of $3,000,000 was available from the original appropriation.

The magnitude of this problem led the Secretary of Agriculture to seek the advice of leading specialists selected from various parts of the country, both as to the work as above outlined and as to the possibility of eradication. He appointed a committee consisting of Vernon Kellogg, permanent Secretary of the National Research Council; H. A. Morgan, President, University of Tennessee; T. P. Cooper, Dean, College of Agriculture and Director of Extension Work, Lexington, Kentucky; Victor R. Gardner, Director, State Experiment Station and Professor of Horticulture, Michigan State College; T. J. Headlee, Professor of Entomology, Rutgers College, and State Entomologist of New Jersey; G. A. Dean, Head of Department of Entomology, Kansas State Agricultural College, and Entomologist, State Experiment Station; and H. J. Quayle, Professor of Entomology, University of California.

These specialists met in Washington on July 8. On July 19 they began a field survey of the situation in Florida and later submitted a report to the Secretary of Agriculture. In this report they emphasized their belief that eradication was not only practicable but an economic necessity, and recommended a very considerable enlargement of the work then under way and the modification of regulations so as to permit, under a system of sterilization, and without risk of spreading the pest, the interstate movement of citrus fruits from areas which previously had been considered infested, such control having been found practicable by the federal Bureau of Entomology. This sterilization was offered as a substitute for the destruction of the matured crops in the formerly infested areas which, it was estimated would avoid a loss of about $6,300,000 which such destruction would entail.

This sterilization of fruit, either by refrigeration or by heat, made possible the utilization of all fruit other than that actually infested, either by movement in commerce or in some type of processing. Methods had been devised for the disposal of waste and cull fruit both in bulk from the orchards and as a continuing process in connection with packing house operations. Machinery for this purpose had been devised and methods for bulk disposal had been worked out which facilitated the disposal of the fruit of the crop of 1928-29, in the infested areas.

Largely as a result of the above-mentioned report of the committee of seven, the Secretary of Agriculture on August 21, issued an order for a general revision of the Mediterranean fruit-fly quarantine, effective September 1, under which Florida fruits, vegetables, nursery stock, and other restricted articles were permitted to move during the shipping season. Provision was made for the movement in interstate commerce of all restricted fruits and vegetables other than those produced in areas or on properties which may be determined as infested. While under the new order all infested fruit was required to be promptly destroyed, as theretofore, the destruction of host fruits and vegetables over considerable areas surrounding the infestation was discontinued. This change of policy was made possible as a result both of the intensive eradication effort, in Florida, of the four preceding months and the determination of methods of sterilizing citrus and other host fruits, which are believed to eliminate risk of carrying infestation. This opened up a broader field for the marketing of Florida host fruits and vegetables.

A revision of Quarantine 68, approved August 20, effective September 1, 1929, quarantined any state, territory or the District of Columbia in which an infestation of the fruit fly is determined.

On August 30, the regulations were issued under Quarantine No. 68 authorizing the interstate movement, prior to October 1, of marketable citrus fruits produced within the eradication area and also authorizing that citrus fruit within this area might, in lieu of destruction remain on the trees to reach a marketable stage of ripeness, conditioned on the determination by an inspector of the absence of local risk of infestation. This amendment affected only the eradication area. Host fruits or vegetables produced outside this area may, subject to the restrictions as to issuance of permits and shipping destination, be moved throughout the year.

On October 12, there was a further modification of the fruit-fly quarantine regulations. This modification provided for the release of areas designated as infested, the effect being to remove the requirement of sterilization in the case of fruit moved to destinations northeast of Potomac Yards, Virginia. Under this order the State Plant Board of Florida was authorized to release from such designation all areas theretofore determined as infested, except as to areas within which infestations had been determined subsequent to July 31.

Administrative instructions amending Quarantine No. 68 issued October 23 authorized the use of heat sterilization for Florida grapefruit as a condition of interstate movement. All infested fruits and vegetables, however, remained excluded from commercial shipment or other movement, and were required to be promptly destroyed if found.

On November 21, Quarantine No. 68 was still further modified to permit movement of fruit under sterilization into southern and western states, which sections up to that time had been excluded from all movement of host fruits and vegetables from Florida under the quarantine.

On October 12, 1929, the Secretary of Agriculture, acting in conjunction with William R. Wood, Chairman of the House Committee on Appropriations, appointed another committee selected by the President of the University of Indiana. This group consisted of: W. O. Thompson, President Emeritus, Ohio State University; W. C. Reed, commercial fruit grower of Vincennes, Indiana; W. P. Flint, Chief Entomologist, Illinois Natural History Survey; W. H. Alderman, Head of the Department of Horticulture, University of Minnesota; and J. J. Davis, Head of the Department of Entomology, Purdue University.

The report of this committee, which was released on October 28, concurred with the report of the previous committee of seven regarding the economic importance of the insect and the need for eradication. It commended the work of the research forces for the progress made since April 6, 1929, with attractants, poison sprays, host-plant studies and fruit sterilization, and it equally commended the control forces for the apparent thoroughness and completeness of the quarantine and eradication work. The growers were also commended for the sacrifices made in destroying hundreds of thousands of boxes of fruit, in order to aid in the eradication. The committee found that the expenditures for this work " show an economical and efficient use of the funds available."

During the campaign of inspection, control, and eradication, the fruit fly was found on more than 980 properties in twenty counties of central and northern Florida. The protective area which has been included surrounding these points of infestation involved altogether more than ten million land acres, the area containing about sixty-seven per cent of the bearing citrus trees in Florida. No field infestation of the fruit fly was found outside of this area. Between August 27 and November 16, the intensive inspections made disclosed no infestation either within or without the general area, but on the latter date infestation was discovered of a single fruit in a small grove near Orlando. Since then no infestations of any kind have been discovered. There is no certainty, however, that the fly will not reappear, as insufficient appropriations have made it impossible adequately to determine whether the fly is actually in existence.

On December 9, 1929, the President, therefore, submitted to Congress a supplementary estimate of appropriation for 1930, amounting to $15,381,000, to enable the Secretary of Agriculture to continue the work of eradication, control, and prevention of the spread of the Mediterranean fruit fly.

Instead of making the requested appropriation, Congress adopted a resolution, approved December 21, 1929 (Public Resolution 29, 71st Congress), appropriating $1,290,000 " for the control, prevention of spread, and eradication of the Mediterranean fruit fly," to be available until June 30, 1930. Of this sum, $290,000 was made available to reimburse another appropriation "for expenditures made therefrom for this control and eradication " thus leaving $1,000,000 for subsequent work. The report of the Appropriation Committee of the House limited the use of these funds by providing that they could not be expended for any eradication work except in case new infestations were found. As the original appropriation had become exhausted, the clean-up and eradication work had to be abandoned early in January.

On January 9, 1930, the Secretary of Agriculture appointed for an indefinite period a Federal Fruit Fly Board to consider all biological and entomological questions and to determine policies in the actual fruit-fly eradication work and to supervise and control federal expenditures in the eradication effort. This Board consists of W. C. O'Kane, State Entomologist of New Hampshire, Chairman; J. J. Davis Professor of Entomology at Purdue University; George A. Dean, Professor of Entomology, Kansas State Agricultural College; W. P. Flint, State Entomologist of Illinois; and P. J. Parrott, entomologist of the New York Experiment Station; with headquarters at Orlando. It serves as an immediate contact between the Plant Quarantine and Control Administration and the eradication forces in Florida, and is intended to relieve the administrative officers in Florida of the necessity of giving attention to grievances and recommendations of growers and shippers, and thus to enable them to devote more time and energy to the eradication campaign. The Board established immediate contacts with all branches of the agricultural industry in Florida, in order to ascertain the needs of the industry and to provide for dissemination to all interested parties in Florida full information on conditions in the fruit-fly eradication work.

In the carrying on of the Mediterranean fruit fly campaign, the Bureau of Entomology actively coöperated with the Plant Quarantine and Control Administration by mobilizing every possible resource at its command, including its Hawaiian and Mexican laboratories, for the attack on the pest. It developed an effective spray and a number of highly attractive materials for trapping the insects. In an area of three hundred square miles, the Bureau made a study of all the wild fruiting plants which might possibly be hosts for the fruit fly. A calendar for all known host plants was worked out showing the periods of the year in which these host plants are in fruit in the districts in Florida liable to infestation.

A study of the Mediterranean fruit-fly situation in the countries bordering the Mediterranean was undertaken in August, a specially equipped vessel for that purpose having been privately furnished by Allison V. Armour of New York, a collaborator of the Department of Agriculture. The survey was entrusted to H. J. Quayle, a member of the committee of seven. The vessel left New York August 24, 1929, for Bermuda and the important citrus areas in the Mediterranean countries and South Africa.

White Pine Blister Rust Control. White pine blister rust is a disease which attacks five-needled pines of all ages and also currant and gooseberry plants and threatens the existence of such pines throughout the country. The disease cannot be eradicated by fumigation, and the only means of control appears to be the systematic local segregation of these pines and currants on areas best suited to their respective production, and the eradication of the black currant plant because of its high susceptibility to infection, its pine-infecting power, and its small economic importance. The Administration, in coöperation with other bureaus of the Department of Agriculture and with state authorities, is carrying on this work in the enforcement of Quarantine No. 63, which prohibits, except as provided in the rules and regulations supplementary thereto, the interstate movement in the continental United States and the District of Columbia of five-leafed pines and of currant and gooseberry plants. Special appropriations have been made for a long period of years for the prevention of spread of this disease. A revision of this quarantine of July 31, 1928, provides for the interstate movement under certain precautions and safeguards of five-leafed pines from the generally infected areas, by removing the prohibition of movement from Wisconsin and Minnesota, to Michigan, Pennsylvania, and New Jersey, and authorizing the interstate shipments without federal permit and without environs inspection of cultivated red and white and mountain currant and cultivated gooseberry plants from infected states, conditional on their having been dipped in a lime-sulphur solution of specified strength and otherwise complying with the regulations.

Phony Peach Disease Control. The work of preventing the spread of the phony peach disease, which injures, by dwarfing, certain trees, and which exists only in Georgia and Alabama, is being carried on by the administration through the enforcement of Quarantine No. 67 promulgated April 30, 1929, effective June 1, 1929, which restricts the interstate movement from the regulated areas of Georgia and Alabama, of peach trees, peach roots, nectarine trees, nectarine roots, and all kinds and varieties of trees or shrubs grafted or budded on peach or nectarine roots. The principal danger of spread of this disease is believed to be with the movement of nursery stock, as neither scions, seeds, nor fruit are believed to be able to carry the disease to new locations. The eradication measures, namely, the destruction of all infected plants or orchards, are being carried on by the Bureau of Plant Industry.

The disease is believed to have been present in Georgia for about forty or fifty years. It did not cause alarm until 1915 when the spread was called to the attention of the Bureau of Plant Industry. Experiments with the disease were started by that Bureau in Georgia in 1921, but it was only recently that the disease was determined definitely as being transmissible. At the recommendation of the Bureau of Plant Industry a hearing on the subject of a domestic quarantine was held December 17, 1928, and Quarantine No. 67 was promulgated.

Terminal Inspection of Plants and Plant Products. An agricultural appropriation act of March 4, 1915, made provision, under certain conditions, for terminal inspection, by state authorities, of plants and plant products transmitted interstate through the mails. Before this enactment, a state could protect itself, as now, by quarantining against plants and plant products of other states so far as shipments by freight or express were concerned, but it had no authority to interfere with shipments sent through the mails. The above-mentioned act grants such authority to states desiring it, provided they establish and maintain a terminal inspection service at one or more places in the state.

When a state desires such authority the proper officer must submit to the Secretary of Agriculture a list of the plants and plant products and the plant pests transmitted thereby which they desire to be subject to terminal inspection, and if the list is approved in whole or in part he transmits it as approved to the Postmaster General. After that all packages containing any plants or plant products named in the approved list, upon paying postage therefor, are forwarded by the postmaster at the destination of the package to the proper state officer for inspection. If the plant or plant products are found, upon inspection by the state authority, to be free from injurious pests, or, if infected, they are disinfected by that officer, they are returned to the postmaster at the place of inspection to be forwarded to the person to whom they were addressed. If they are found to be infected with injurious pests and incapable of satisfactory disinfection, the state inspector notifies the postmaster at the place of inspection, who notifies the sender of the plants or plant products that they will be returned to him upon his request and at his expense, or, in default of such request, that they will be turned over to the state authorities for destruction. Acceptance of the advantages of this provision of the act is optional with each state. Rules and regulations for carrying out this provision have been prescribed by the Postmaster General. At present thirteen states, the District of Columbia and the Territory of Hawaii are taking advantage of this act.

The national government pays none of the expense arising under this act, and activities in the terminal states in connection with its enforcement are carried on by the post office and state authorities. The activities of the Plant Quarantine and Control Administration are those incidental to the submission to and approval by the Secretary of Agriculture of the lists of plants and plant products which the states desire to be subject to terminal inspection, and the transmission of these lists to the Postmaster General. The Administration also keeps a record of such approved lists and of the states availing themselves of the benefits of this act.

Inspection and Certification of Plants for Export. An act of May 11, 1926 (44 Stat. L., 526), provides for export certification, and authorizes the Secretary of Agriculture "to inspect, under such rules and regulations as the Secretary of Agriculture may prescribe, domestic fruits, vegetables, and seeds, and nursery stock and other plants for propagation, when offered for export, and to certify to shippers and interested parties as to the freedom of such products from injurious plant diseases and insect pests according to the sanitary requirements of foreign countries, and to make such reasonable charges and to use such means as may be necessary to accomplish this object." A small annual appropriation has been made for this service although it is intended to be self-sustaining.

This service is performed by the Plant Quarantine and Control Administration. The inspection and certification provided for is needed because an increasing number of foreign countries require, like the United States, certification that such consignments are free from disease and insect pests. This work of inspection and certification is carried on by trained specialists of the Administration.

District of Columbia Plant Quarantine. An amendment to the Plant Quarantine Act made in an appropriation act of May 31, 1920 (41 Stat. L., 694, 726), adds, as Section 15, a provision authorizing the Secretary of Agriculture to regulate the movement of plants and plant products, including nursery stock, out of or into the District of Columbia, and to control injurious plant diseases and insect pests within the District. The enforcement of this provision of law has been entrusted to the Plant Quarantine and Control Administration. The powers conferred under this provision are the same kind as those exercised by the state and territorial authorities in nearly all the states and territories of the Union. Rules and regulations governing the movement of plants and plant products into and out of the District of Columbia have been promulgated by the Secretary of Agriculture and are being enforced by the Administration. The provisions of the Act of March 4, 1915, concerning terminal inspection of mail shipments of plants and plant products, have been made to apply to the District of Columbia.

The activities carried on by the Administration under this act consist of the inspection, certification, and, when necessary, the disinfection of plants and plant products entering or destined for shipment from the District of Columbia. All nursery stock and similiar plant material intended to be shipped to points outside the District are required to be presented at the inspection house of the Plant Quarantine and Control Administration for inspection at the time of shipment, and all incoming stock is delivered to the inspection house, unless it is released at the railway station or elsewhere by an inspector of the Department.

Violations of Plant Quarantine Act. Section 10 of the Plant Quarantine Act makes it a misdemeanor for any person to violate any provision of this act or to " forge, counterfeit, alter, deface or destroy any certificate provided for in this act or in the regulations of the Secretary of Agriculture." The act makes it a duty of United States Attorneys to prosecute any such violations of the act that are brought to their attention by the Secretary of Agriculture or by other means. During the fiscal year ending June 30, 1929, there were 200 such convictions with fines aggregating $1437. Of these, 187 convictions with fines aggregating $960, were of persons caught attempting to smuggle in from Mexico prohibited plants and plant products.

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CHAPTER III

ORGANIZATION

The Plant Quarantine and Control Administration was organized in accordance with the provisions of the appropriation act of May 16, 1928 (45 Stat. L., 539, 564), which became effective July 1, 1928. Its function is to enforce, under the direction of the Secretary of Agriculture, the provisions of the Plant Quarantine Act of August 20, 1912; the Insect Pest Act of March 3, 1905; the Terminal Inspection Act of March 4, 1915, in coöperation with the Post Office Department; the Mexican Border Act of October 6, 1917; and the Export Certificate Act of May 11, 1926.

The work of the Plant Quarantine and Control Administration is mainly regulatory and is carried on in the central office in Washington and in the field. The legal aspects of the cases under the acts it enforces are considered by the Solicitor for the Department of Agriculture, who prepares the cases for the Department of Justice for transmission to the United States district attorneys.

In addition to the federal officers and employees, many state officers coöperate in the enforcement of the regulatory acts, devoting part time to this work. Many of these receive no compensation from the national government.

The regular technical and administrative employees of the Administration are all in the classified civil service and receive their appointment through examination and recommendation by the Civil Service Commission. A greatly varying number of unclassified temporary field workers is employed from time to time as needed. On April 15, 1930, there were 728 full-time classified employees and 284 collaborators and agents working part time in the service of the Administration.

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The organization of the Administration consists of the Federal Plant Quarantine Board and the Offices of the Chief and Assistant Chief of Administration, a Foreign Plant Quarantines Division, and a Domestic Plant Quarantines Division and seven field divisions which are responsible for field enforcement of certain quarantines.

Federal Plant Quarantine Board. Provision is made in the Act of May 16, 1928, for the appointment, by the Secretary of Agriculture, of a Federal Plant Quarantine Board, consisting of the Chief of the Plant Quarantine and Control Administration, as chairman, and four members representing the Bureaus of Entomology and Plant Industry and the Forest Service of the Department of Agriculture. The functions of this Board are purely advisory. The membership on April 15, 1930, consisted of the Chief of the Plant Quarantine and Control Administration, the Assistant Chief of the Bureau of Entomology, and the principal agronomist in charge of forage crops and the principal pathologist in charge of fruit and nut diseases, both of the Bureau of Plant Industry. No representative of the Forest Service had been appointed on that date. These officers serve without additional compensation.

Offices of the Chief and Assistant Chief of Administration. The Chief has supervision and control over all of the activities of the Plant Quarantine and Control Administration. In his work as Chief of this Administration he is aided by an Assistant Chief, and an Assistant to the Chief.

Business Administration Unit. The purely business affairs of the Administration are carried on in the Business Administration Unit, which comprises the Office of the Business Manager in Charge, and sections for Accounts, Audits, Property, Personnel, Mail and Files, and Claims.

Foreign Plant Quarantines Division. The Foreign Plant Quarantines Division includes all control and quarantine agencies of the Administration which are concerned with the enforcement of quarantines prohibiting or regulating the entry of plants and plant products from foreign countries and from our island possessions, and with the examination and certification for export of plants and plant products. The central control is vested in a principal entomologist whose office is located in Washington. This Division is organized into two subdivisions or services: Import and Port Inspection.

Import Subdivision. The Import Subdivision exercises central control over the entry of plants and plant products from foreign countries and from the island possessions, with the object of preventing the introduction into this country of new and dangerous insect enemies and plant diseases. Its work is carried on at Washington.

Port Inspection Subdivision. This subdivision comprises the maritime inspection service, the Mexican Border inspection service, and the Quarantine Station of the District of Columbia.

The maritime inspection service inspects, certifies, and, when necessary, disinfects foreign plants and plant products, including inspection of parcel post, passengers' baggage, ships' stores, and crews' quarters. The field work is carried on in part by federal officers and employees of the Plant Quarantine and Control Administration, in some places by customs officers, but mostly by state officers and employees who, like the customs officers, are designated as collaborators.

The functions of the Mexican Border inspection service comprise the enforcement of federal quarantine regulations to prevent the entry of insect pests and plant diseases with plants and plant products imported from Mexico under permit, including the inspection and disinfection of such material; the inspection and, when necessary, fumigation of railway cars and other vehicles from Mexico; examination of passengers' baggage, express, freight, and parcel post packages for contraband plants and plant products; and examination and certification of plants and plant products offered for export to meet the sanitary requirements of foreign countries.

The port work is carried on at thirty-six field stations by classified employees of the Administration. Of these, nineteen are Mexican Border stations. Collaborators of the Foreign Plant Quarantines Division giving part time to the Administration carry on port-inspection work at twenty-four stations, and other than port-inspection work in thirty-two states.

The District of Columbia Quarantine Station is organized to carry out the provisions of the amendment to the Plant Quarantine Act of 1912, enacted May 31, 1920 (41 Stat. L., 726), constituting Section 15 of that act, which gives the Secretary of Agriculture authority to regulate the movement of plants and plant products from or into the District of Columbia, and to control injurious plant diseases and insects pests within the District. The duties and powers delegated to this service are similar to those exercised by the plant quarantine and control authorities of the several states and territories. This service inspects, certifies, and, if necessary, disinfects plants and plant products entering and leaving the District of Columbia. It also inspects plants at field stations of the Department of Agriculture.

Domestic Plant Quarantines Division.. Under this head are grouped certain projects of the Plant Quarantine and Control Administration which deal with the enforcement of domestic plant quarantines which aim to prevent the spread of insect pests and plant diseases which may have gained a local foothold in this country. The projects for which special appropriations are made are: White Pine Blister Rust Control, Phony Peach Disease Control, and Transit Inspection.

In addition to the classified employees, agents, and collaborators engaged in these domestic plant quarantine projects, there are other collaborators engaged in domestic plant quarantine activities in twenty-seven states nearly all of whom serve without compensation from the national government.

Division of Pink Bollworm and Thurberia Weevil Control. The functions of this Division are to suppress the spread of the pink bollworm of cotton and the Thurberia weevil and, where possible, to effect their eradication. This involves scouting operations to determine the range of infestation, clean-up operations, and the enforcement of Quarantine No. 52, which prohibits, except under certain regulations, the interstate movement from infested and regulated areas of Texas, Arizona, and New Mexico of possible carriers of the pink bollworm; and Quarantine No. 61, which likewise forbids the interstate movement of Thurberia, or any part of the plant, or possible carriers of the Thurberia weevil from any point in Arizona. The work of the Division is carried on at the headquarters at San Antonio and at field stations located at Mesa, Phœnix, Tucson, and Safford, Arizona; Roswell, New Mexico; and Big Spring, El Paso, Marfa, and Pecos, Texas. Scouting work is also carried on in Mexico.

Division of Date Scale Control. This Division has to do with efforts for the eradication of the date scale and the prevention of its spread. This involves the burning and torching of infested palms and the enforcement of Quarantine No. 6, which regulates the interstate movement of date palms and date-palm offshoots from certain counties in California, Arizona, and Texas on account of the Parlatoria scale and the Phoenicococcus scale. The headquarters of this unit are in Indio, California. Other stations are in the Coachella Valley and the Imperial Valley of California, and at Phœnix, Arizona.

Division of Gipsy Moth and Brown-tail Moth Control. The functions of the Gipsy Moth and Brown-tail Moth Control Division are to prevent the spread of these insects and to eradicate all gipsy-moth infestations found beyond the quarantined areas. They involve scouting operations to determine the range of infestation, clean-up and eradication operations, and the enforcement of Quarantine No. 45, which regulates the interstate movement of possible carriers of these insects. The headquarters of this Division are at Melrose Highlands, Massachusetts, and other stations are at Boston, Massachusetts, and Bound Brook, New Jersey. In addition to the regular force of experts and agents there is a variable force of temporary employees.

Division of European Corn Borer Control. The function of this Division is to suppress the spread of the European corn borer and, where possible, to effect its eradication. This involves scouting operations to determine the range of infestation, operation of quarantine lines to prevent long distance spread, clean-up operations, and the enforcement of Quarantine No. 43, which regulates the movement, interstate, of possible carriers of this insect. The headquarters of this unit are at Boston, Massachusetts. Other stations are at South Norwalk, Connecticut, and Toledo, Ohio. In addition to the regular employees of the Administration engaged in this Division, there are many temporary employees who act as scouts and quarantine linemen.

Division of Japanese Beetle Control. The function of the Japanese Beetle Division is to prevent the spread of these insects, and, where possible, to effect their control or eradication. This involves scouting operations to determine the range of infestation, clean-up operations, and the enforcement of Quarantine No. 48, regulating the interstate movement of possible carriers of the Japanese beetle. In carrying on these activities the Division coöperates with the Bureau of Entomology and the States of Connecticut, Delaware, Maryland, New Jersey, New York, and Pennsylvania. The headquarters for this work are at Camden, New Jersey, with district stations in Connecticut, Delaware, Maryland, New Jersey, New York, and Pennsylvania. In addition to the regular employees of the Administration, there are many temporary employees, some of whom are paid partly out of federal appropriations and partly out of appropriations of the coöperating states.

Division of Mexican Fruit Worm Control. The object of the Mexican Fruit Worm Division is to eradicate this insect within the United States and to enforce regulatory measures to prevent its reestablishment. The work includes the inspection of citrus groves; the destruction of alternate hosts and the maintenance of host-free periods; the enforcement of Quarantine No. 64, which regulates the interstate movement of possible carriers of this insect from the infested area of Texas; and the certification of fruits leaving the quarantined area. The work is nearly all carried on in Texas, the headquarters being at Harlingen, and the other field stations at Brownsville, Donna, La Feria, McAllen, Mercedes, Mission, Pharr, Raymondville, San Benito, and Welasco. Road traffic inspection stations are maintained at Encino and Rio Grande City, Texas, and a survey is being carried on in Mexico.

Division of Mediterranean Fruit Fly Eradication. The quarantine, control, and clean-up work on account of the Mediterranean fruit fly in Florida was being carried on, on April 15, 1930, under the direction of the Federal Fruit Fly Board of five scientists appointed by the Secretary of Agriculture and four officers of the Plant Quarantine and Control Administration. The investigational work was in charge of a scientist of the Bureau of Entomology.

APPENDIX 1

OUTLINE OF ORGANIZATION

Explanatory Note

The purpose of Outlines of Organization in this series of Monographs is to show in detail the organization and personnel of the several services of the national government to which they relate. They have been prepared in accordance with the plan followed by the President's Commission on Economy and Efficiency in its outlines of the organization of the United States government.[1] They differ from those outlines, however, in that whereas the Commission's report showed only organization units, the presentation herein has been carried far enough to show the personnel embraced in each organization unit.

These outlines are of value not merely as an effective means of making known the organization of the several services. If kept revised to date, they constitute exceedingly important tools of administration. They permit the directing personnel to see at a glance the organization and personnel at their disposal. They establish definitely the line of administrative authority and enable each employee to know his place in the system. They furnish the essential basis of plans for determining costs by organization division and sub-division. They afford the data for a consideration of the problem of classifying and standardizing personnel and compensation. Collectively they make it possible to determine the number and location of organization units of any particular kind, such as laboratories, libraries, blue-print rooms, or other plants, to what services attached and where located, or to determine what services are maintaining stations at any city or point in the United States. The Institute hopes that upon the completion of the present series, it will be able to prepare a complete classified statement of the technical and other facilities at the disposal of the government. The present monographs will then furnish the details regarding the organization, equipment, and work of the institutions so listed and classified.

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[1] 62 Cong., H. doc. 458, 1912, 2 vols.

OUTLINE OF ORGANIZATION

PLANT QUARANTINE AND CONTROL ADMINISTRATION
DEPARTMENT OF AGRICULTURE
APRIL 15, 1930

Units of Organization: *Classes of Employees*	*Number*[2]	*Annual Salary Rate*
1. Office of the Chief of Administration		
1. Immediate Office of the Chief of Administration		
Chief of Administration	1	$6,500
Secretary to Chief	1	2,000
2. Office of the Assistant Chief of Administration		
Assistant Chief of Administration	1	6,400
Secretary to Assistant Chief of Administration	1	2,000
3. Office of the Assistant to the Chief of Administration		
Administrative Assistant	1	3,200
Assistant Clerk-Stenographer	1	1,740
	1	1,680
	1	1,620
Junior Clerk-Stenographer	1	1,500
4. Office of Public Relations		
Informational Officer	1	3,800
Principal Stenographer	1	1,920
Assistant Clerk	1	1,860
5. Business Administration Unit		
1. Office Proper of the Business Manager		
Business Manager	1	3,700
Secretary to Business Manager	1	1,800

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[2] This is the number of persons actually employed on April 15, 1930. There is a greatly varying number of temporary field employees engaged from time to time as needed.

2. Accounts Section		
Chief Accountant	1	2,800
Accountant	1	2,100
Associate Accountant	1	1,680
	1	1,620
Senior Operator	1	1,800
	1	1,740
	3	1,620
Junior Clerk-Typist	1	1,440
3. Audits Section		
Chief Auditor	1	2,800
Auditor	1	1,860
	2	1,800
Assistant Auditor	1	1,620
Assistant Clerk-Stenographer	1	1,740
Junior Clerk-Stenographer	1	1,440
4. Property Section		
Property Officer	1	2,700
Assistant Property Officer	1	2,000
Inventory Clerk	1	1,920
Assistant Clerk-Stenographer	1	1,740
Stock Clerk	1	1,440
Senior Laborer	1	1,200
Junior Laborer	1	1,080
5. Personnel Section		
Personnel Officer	1	2,000
Clerk	1	1,800
6. Mail and Files Section		
Senior Clerk	1	2,400
Assistant Clerk	1	1,740
Junior Clerk	1	1,440
Messenger	1	1,320
	1	1,200
Assistant Messenger	1	1,080
Junior Messenger	1	600
7. Claims Section		
Principal Clerk	1	2,300
Assistant Clerk-Stenographer	1	1,620
2. Foreign Plant Quarantines Division		
1. Office Proper of the Principal Entomologist		
Principal Entomologist	1	6,000

Special Assistant to Principal Entomologist	1	4,800
Head Clerk of Division	1	2,100
Clerk-Stenographer	1	1,800
Assistant Clerk-Stenographer	1	1,620
Junior Clerk-Typist	1	1,620
Junior Messenger	1	600
2. Import Subdivision		
Senior Pathologist	1	4,600
Plant Quarantine Inspector	1	3,800
Associate Plant Quarantine Inspector	1	3,700
	1	3,600
Assistant Plant Quarantine Inspector	1	2,900
	1	2,800
Associate Horticulturist	1	3,600
Assistant Horticulturist	1	2,800
Junior Administrative Assistant	1	2,900
Clerk	2	1,980
	1	1,860
Assistant Clerk	2	1,860
	2	1,800
	1	1,680
Junior Clerk	1	1,680
	1	1,620
	1	1,560
	1	1,440
Clerk-Stenographer	1	1,860
Assistant Clerk-Stenographer	1	1,800
	1	1,620
Junior Clerk-Stenographer	1	1,440
Senior Stenographer	1	1,620
Junior Stenographer	1	1,440
Assistant Messenger	1	1,320
3. Port Inspection Subdivision		
1. Office Proper of the Plant Quarantine Inspector		
Plant Quarantine Inspector	1	3,800
Associate Entomologist	1	3,400
Assistant Plant Quarantine Inspector	1	2,700
Junior Plant Quarantine Inspector	1	2,500
Senior Scientific Aid	1	2,200
Assistant Clerk	1	1,860

2.	Field Station, Baltimore, Maryland		
	Assistant Plant Quarantine Inspector	1	3,000
	Junior Plant Quarantine Inspector	1	2,400
3.	Field Station, Bellingham, Washington		
	Junior Plant Quarantine Inspector	1	2,400
4.	Field Station, Boston, Massachusetts		
	Plant Quarantine Inspector	1	3,800
	Assistant Plant Quarantine Inspector	1	3,000
	Junior Plant Quarantine Inspector	2	2,400
	Assistant Clerk	1	1,800
5.	Field Station, Charleston, South Carolina		
	Assistant Plant Quarantine Inspector	1	2,700
6.	Field Station, Chicago, Illinois		
	Assistant Plant Quarantine Inspector	1	2,800
7.	Field Station, Detroit, Michigan		
	Assistant Plant Quarantine Inspector	1	2,800
	Junior Plant Quarantine Inspector	1	2,100
8.	Field Station, Galveston, Texas		
	Associate Plant Quarantine Inspector	1	3,300
9.	Field Station, Honolulu, Hawaii		
	Senior Entomologist	1	4,600
10.	Field Station, Houston, Texas		
	Associate Plant Quarantine Inspector	1	3,300
11.	Field Station, New Orleans, Louisiana		
	Plant Quarantine Inspector	1	3,800
	Assistant Plant Quarantine Inspector	1	2,900
		2	2,700
		3	2,600
	Junior Plant Quarantine Inspector	1	2,200
	Senior Clerk-Stenographer	1	2,200
12.	Field Station, New York, New York		
	Senior Plant Quarantine Inspector	1	4,800

	Associate Plant Quarantine Inspector	2	3,600
		3	3,300
		1	3,200
		1	3,000
	Assistant Plant Quarantine Inspector	1	3,000
		7	2,800
		2	2,700
		2	2,600
	Junior Plant Quarantine Inspector	1	2,400
		4	2,300
		2	2,200
		2	2,000
	Associate Pathologist	1	3,400
	Junior Administrative Assistant	1	3,000
	Principal Clerk	1	2,700
	Senior Clerk	1	2,500
	Assistant Clerk	1	1,860
		1	1,740
	Assistant Clerk-Stenographer	1	1,680
	Junior Clerk-Typist	1	1,740
13.	Field Station, Norfolk, Virginia		
	Assistant Plant Quarantine Inspector	1	2,700
14.	Field Station, Philadelphia, Pennsylvania		
	Plant Quarantine Inspector	1	3,800
	Assistant Plant Quarantine Inspector	1	2,900
	Junior Plant Quarantine Inspector	1	2,300
		1	2,200
		1	2,000
15.	Field Station, Portland, Oregon		
	Assistant Plant Quarantine Inspector	1	3,100
16.	Field Station, San Juan, Porto Rico		
	Associate Plant Quarantine Inspector	1	3,900
	Assistant Plant Quarantine Inspector	1	3,200
		1	3,000
	Junior Plant Quarantine Inspector	1	2,400
	Senior Clerk-Stenographer	1	2,400

17 Field Station, Savannah, Georgia		
Associate Plant Quarantine Inspector	1	3,200
18. Field Station, Seattle, Washington		
Plant Quarantine Inspector	1	3,800
Assistant Plant Quarantine Inspector	1	2,900
	1	2,700
	1	2,600
Junior Plant Quarantine Inspector	1	2,500
Junior Stenographer	1	1,440
19. Field Station, Brownsville, Texas		
Plant Quarantine Inspector	1	3,800
Assistant Plant Quarantine Inspector	1	2,600
Junior Plant Quarantine Inspector	1	2,500
	6	2,000
Laborer	1	1,020
20. Field Station, Calexico, California		
Associate Plant Quarantine Inspector	1	3,300
Junior Plant Quarantine Inspector	2	2,000
21. Field Station, Columbus, New Mexico		
Junior Plant Quarantine Inspector	1	2,000
22. Field Station, Del Rio, Texas		
Assistant Plant Quarantine Inspector	1	2,900
Junior Plant Quarantine Inspector	1	2,000
23. Field Station, Douglas, Arizona		
Assistant Plant Quarantine Inspector	1	2,600
Junior Plant Quarantine Inspector	3	2,000
24. Field Station, Eagle Pass, Texas		
Associate Plant Quarantine Inspector	1	3,400
Assistant Plant Quarantine Inspector	1	2,800
	1	2,700
Junior Plant Quarantine Inspector	1	2,100
	1	2,000
Laborer	1	1,200

25. Field Station, El Paso, Texas		
Associate Plant Quarantine Inspector	1	3,400
Assistant Plant Quarantine Inspector	1	2,800
	1	2,600
Junior Plant Quarantine Inspector	7	2,000
Junior Clerk-Typist	1	1,500
26. Field Station, Fabens, Texas		
Junior Plant Quarantine Inspector	1	2,400
	1	2,000
27. Field Station, Hildalgo, Texas		
Assistant Plant Quarantine Inspector	1	3,000
Junior Plant Quarantine Inspector	1	2,300
	1	2,000
28. Field Station, Laredo, Texas		
Associate Plant Quarantine Inspector	1	3,400
Assistant Plant Quarantine Inspector	1	2,800
Junior Plant Quarantine Inspector	1	2,400
	5	2,000
Principal Fumigation Mechanic	1	2,600
Laborer	1	1,260
29. Field Station, Naco, Arizona		
Junior Plant Quarantine Inspector	1	2,200
	1	2,000
30. Field Station, Nogales, Arizona		
Associate Plant Quarantine Inspector	1	3,400
Assistant Plant Quarantine Inspector	1	2,700
Junior Plant Quarantine Inspector	2	2,100
	6	2,000
Junior Stenographer	1	1,560
Fumigation Mechanic	1	1,980
31. Field Station, Presidio, Texas		
Assistant Plant Quarantine Inspector	1	2,800
Junior Plant Quarantine Inspector	1	2,000

32. Field Station, Rio Grande City, Texas		
Assistant Plant Quarantine Inspector	1	2,700
33. Field Station, Roma, Texas		
Junior Plant Quarantine Inspector	1	2,500
	2	2,000
34 Field Station, San Ysidro, California		
Junior Plant Quarantine Inspector	1	2,500
	1	2,000
35. Field Station, Thayer, Texas		
Junior Plant Quarantine Inspector	1	2,500
	1	2,000
36. Field Station, Ysleta, Texas		
Junior Plant Quarantine Inspector	1	2,400
37. Field Station, Zapata, Texas		
Junior Plant Quarantine Inspector	1	2,200
	1	2,000
38. Stations of Collaborators[3]		
Collaborators engaged in port-inspection work		
Alabama—Mobile	1	300
California		
Los Angeles	3	0 to 120
San Diego	3	60 to 180
San Francisco	17	60 to 360
San Pedro	5	60 to 180
San Ysidro	1	0
Santa Barbara	1	60
Florida		
Jacksonville	3	120
Key West	2	0 to 120
Miami	8	0 to 120
Pensacola	1	120
Tampa	2	120
Hawaii—Honolulu	11	0 to 300
Illinois—Chicago	1	120

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[3] Collaborators who devote part time to the work are located as indicated. Many of these are state officers who receive no compensation from the national government. In some states each collaborator reports directly to the Washington Office, but in other states a group of collaborators may form an administrative unit. This list classifies the collaborators according to character of work and location, but does not indicate organization.

Louisiana—New Orleans	1	0
Maine—Portland	1	0
Michigan—Port Huron	1	120
Mississippi		
Gulfport	1	120
Pascagoula	1	120
Oregon—Portland	3	0 to 300
Porto Rico		
San Juan	2	180
Ponce	1	120
Fajardo	2	120
Ensenada	1	120
Collaborators engaged in work other than port inspection		
Alabama	2	0
Arizona	1	0
California	11	0 to 360
Florida	3	0 to 300
Georgia	1	0
Idaho	1	0
Illinois	1	0
Indiana	1	0
Iowa	1	0
Kentucky	1	0
Maine	1	0
Maryland	1	0
Massachusetts	2	0 to 60
Michigan	3	0
Minnesota	2	0
Mississippi	1	0
Missouri	1	0
Nebraska	1	0
New Jersey	1	0
North Carolina	1	0
North Dakota	2	0 to 6 per day
Ohio	1	0
Oklahoma	1	0
Oregon	2	0
South Carolina	1	0
South Dakota	2	0
Tennessee	1	0
Texas	1	0

Vermont	1	0
Virginia	3	0
West Virginia	1	0
Wisconsin	1	0
39. Quarantine Station, District of Columbia		
Senior Horticulturist	1	4,600
Associate Entomologist, Chief Inspector	1	3,600
Associate Chemist	1	3,200
Assistant Plant Quarantine Inspector	1	3,000
	3	2,900
	1	2,600
Assistant Clerk	1	1,920
Junior Clerk	1	1,740
Junior Stenographer	1	1,500
Laborer	1	1,320
3. Domestic Plant Quarantines Division		
1. Office of the Principal Plant Quarantine Administrator		
Principal Plant Quarantine Administrator	1	5,600
Secretary to Principal Plant Quarantine Administrator	1	2,100
Assistant Clerk-Stenographer	1	1,740
2. White Pine Blister Rust Control Project		
1. Office of Associate Plant Quarantine Inspector		
Associate Plant Quarantine Inspector	1	3,400
Principal Clerk	1	2,400
Assistant Clerk-Stenographer	1	1,740
2. Field Office, Spokane, Washington		
Associate Pathologist	1	3,500
Junior Forester	1	2,400
Agent	1	2,400
3. Phony Peach Disease Control Project—Atlanta, Georgia		
Agent	1	2,700
	1	2,400
	1	300

4. Division of Pink Bollworm and Thurberia Weevil Control

1. Headquarters Office, San Antonio, Texas

Principal Administrative Officer	1	5,600
Senior Administrative Officer	1	4,600
Assistant Plant Quarantine Inspector	1	3,000
	1	2,800
	1	2,600
Junior Plant Quarantine Inspector	2	2,100
Assistant Entomologist	1	2,700
Agent	1	2,000
Clerk	1	1,920
Assistant Clerk	1	1,800
	1	1,620
Under Clerk	1	1,440
Clerk-Stenographer	1	1,860
Senior Stenographer	1	1,680
Junior Stenographer	3	1,440
Under Clerk-Typist	1	1,380
Junior Messenger	1	780
Collaborator	1	300

2. Big Spring, Texas, District

Associate Plant Quarantine Inspector (Chief Inspector)	1	3,200
Assistant Plant Quarantine Inspector	2	2,700
	1	2,600
Junior Plant Quarantine Inspector	1	2,100
	3	2,000
Junior Entomologist	1	2,000

3. Roswell, New Mexico, District

Assistant Plant Quarantine Inspector (Chief Inspector)	1	3,000
	1	2,700
	1	2,600
Junior Plant Quarantine Inspector	1	2,500
	1	2,400
	1	2,100
	3	2,000

4. Pecos, Texas, District

Assistant Plant Quarantine Inspector (Chief Inspector)	1	2,800
Junior Plant Quarantine Inspector	1	2,100
	1	2,000

5. Marfa, Texas, District		
Assistant Plant Quarantine Inspector (Chief Inspector)	1	3,000
Junior Plant Quarantine Inspector	2	2,100
	1	2,000
6. El Paso, Texas, District		
Assistant Plant Quarantine Inspector (Chief Inspector)	1	2,900
Assistant Plant Quarantine Inspector	1	2,900
Junior Plant Quarantine Inspector	1	2,100
	1	2,000
Agent	1	1,860
	1	1,680
7. Safford, Arizona, District		
Agent (Temporary)	1	1,860
8. Tucson, Arizona, District		
Assistant Plant Quarantine Inspector (Chief Inspector)	1	2,800
Assistant Plant Quarantine Inspector	1	2,600
Junior Plant Quarantine Inspector	1	2,100
	1	2,000
9. Phœnix, Arizona, District		
Assistant Plant Quarantine Inspector (Chief Inspector)	1	2,800
Junior Plant Quarantine Inspector	2	2,000
10. Mesa, Arizona, District (Clean-up Work in Salt River Valley)		
Senior Plant Quarantine Inspector	1	4,600
Associate Plant Quarantine Inspector	1	3,200
Assistant Plant Quarantine Inspector	1	2,900
	2	2,800
	1	2,700
Junior Plant Quarantine Inspector	4	2,100
	6	2,000
Junior Mechanical Engineer	1	2,000
Junior Administrative Assistant	1	2,700
Senior Clerk-Stenographer	1	2,100
Agent	1	1,860
11. Pink Bollworm Scouting Unit		
Associate Plant Quarantine Inspector	1	3,200

Assistant Plant Quarantine Inspector	1	2,800
	2	2,600
Junior Plant Quarantine Inspector	1	2,500
	4	2,100
	3	2,000
Senior Scientific Aid	1	2,300
Agent	1	1,500
12. Scouting in Mexico		
Junior Plant Quarantine Inspector	1	2,100
	3	2,000
Agent	2	1,860
5. Division of Date Scale Control		
1. Headquarters Office, Indio, California		
Senior Entomologist	1	4,600
Associate Horticulturist	1	3,300
Chief Scientific Aid	1	2,700
Agent	1	1,700
	1	1,200
2. Coachella Valley, California, District		
Junior Plant Quarantine Inspector	2	2,000
Senior Scientific Aid	1	2,100
	1	2,000
Scientific Aid	4	1,800
Junior Scientific Aid	2	1,680
Agent	13	1,500
Unskilled Laborer	8	1,440
3. Imperial Valley, California, District		
Agent	1	1,800
	1	1,600
Scientific Aid	1	5 per day
4. Phœnix, Arizona, District		
Assistant Plant Quarantine Inspector	1	2,900
Junior Plant Quarantine Inspector	3	2,000
Agent	1	2.50 per day
6. Division of Gipsy Moth and Brown-tail Moth Control		
1. Headquarters Office, Melrose Highlands, Massachusetts		
Principal Entomologist	1	6,000
Senior Entomologist	1	4,800
Senior Administrative Officer	1	4,600

Junior Administrative Officer	1	3,700
Senior Administrative Assistant	1	3,300
Principal Scientific Aid	4	2,700
	1	2,600
	2	2,500
Senior Scientific Aid	1	2,300
	1	2,200
Field Supervisor in Insect Control	1	2,400
	7	2,300
Senior Clerk	1	2,300
Senior Clerk-Stenographer	1	2,200
Principal Mechanic	1	2,300
Clerk-Stenographer	2	2,100
	1	2,040
Assistant Clerk-Stenographer	1	1,680
Agent	7	2,200
	2	2,100
	14	2,000
	23	1,920
	10	1,860
	1	600
Collaborator	1	240
2. Branch Office, Boston, Massachusetts		
Administrative Officer	1	4,200
Senior Administrative Assistant	1	3,300
Senior Scientific Aid	20	2,200
Senior Clerk-Stenographer	1	2,200
Clerk-Stenographer	1	1,860
3. Branch Office, Bound Brook, New Jersey		
Senior Administrative Assistant	1	3,300
Field Supervisor in Insect Control	1	2,400
	5	2,300
Senior Clerk	1	2,400
Agent	1	2,600
7. Division of European Corn Borer Control		
1. Headquarters Office, Boston, Massachusetts		
Principal Administrative Officer	1	6,400
Agent	1	2,100
Clerk-Stenographer	1	1,920
Assistant Clerk-Stenographer	1	1,620

2. Eastern Area, Headquarters, Boston, Massachusetts		
Administrative Assistant	1	3,400
Principal Scientific Aid	1	2,700
Field Supervisor in Insect Control	1	2,400
Agent	1	2,000
	4	1,620
Collaborator	2	300
3. Central Area, Headquarters, South Norwalk, Connecticut		
Entomologist	1	4,400
Principal Field Aid	2	2,600
Field Supervisor in Insect Control	1	2,500
	1	2,400
Senior Scientific Aid	1	2,300
Junior Stenographer	1	1,500
	1	1,440
Agent	1	2,600
	1	2,500
	1	2,400
	1	2,200
	5	1,860
	5	1,620
4. Western Area, Headquarters, Toledo, Ohio		
Senior Administrative Officer	1	4,600
Junior Administrative Officer	1	3,700
Senior Administrative Assistant	1	3,200
Associate Entomologist	1	3,200
Assistant Agronomist	1	3,000
Chief Field Aid	1	2,900
Principal Field Aid	1	2,600
Field Supervisor in Insect Control	2	2,300
Junior Clerk-Stenographer	1	1,620
	1	1,560
	1	1,500
Junior Stenographer	1	1,620
Junior Clerk-Typist	3	1,560
	1	1,440
Junior Telephone Operator	1	1,560
Under Clerk-Typist	1	1,500
	1	1,440
	1	1,380

Junior Clerk	2	1,440
Assistant Messenger	1	1,080
Agent	3	2,700
	3	2,500
	1	2,400
	3	2,300
	1	2,200
	2	2,100
	2	2,040
	4	2,000
	1	1,920
	1	1,860
	11	1,800
	1	1,740
	4	1,680
	14	1,620
	1	1,380
	1	1,080
Collaborator	1	480
8. Division of Japanese Beetle Control		
1. Headquarters Office, Camden, New Jersey		
Principal Administrator in Insect Control	1	5,600
Senior Administrative Officer	1	4,600
Junior Administrative Assistant	1	2,600
Assistant Plant Quarantine Inspector	1	2,700
Field Supervisor in Insect Control	1	2,400
Junior Entomologist	1	2,400
Senior Clerk	1	2,200
	1	2,100
Junior Stenographer	1	1,560
Senior Typist	2	1,440
Agent	1	3,200
	1	[4] 2,200
	1	1,800
	2	1,680
	1	1,560
2. Maryland District		
Field Supervisor in Insect Control	1	2,500

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[4] This is part compensation. Additional compensation is paid by State in which agent is working.

Junior Entomologist	1	2,000
Junior Stenographer	1	1,440
3. Delaware District		
Agent	1	1,800
	1	[5]1,700
	1	1,680
4. Pennsylvania District		
1. Office of Supervisor in Charge of Pennsylvania District and Norristown Territory		
Field Supervisor in Insect Control	1	2,300
Agent	1	2,200
	1	1,740
	3	1,680
	1	1,620
	1	[5]500
2. Philadelphia Territory		
Agent	1	1,800
	1	1,620
	2	1,560
	1	[5]400
5. New Jersey District		
Agent	1	2,040
	3	1,980
	2	1,920
	2	1,800
	2	1,680
	2	1,620
	2	1,560
	1	[5]1,200
6. New York District		
Junior Plant Quarantine Inspector	1	2,400
Senior Stenographer	1	1,800
Agent	1	1,740
	1	1,680
	1	[5]200
7. Connecticut District		
Agent	1	1,800
	1	1,560
	1	[5]400

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[5] This is part compensation. Additional compensation is paid by State in which agent is working.

9. Division of Mexican Fruit Worm Control		
1. Headquarters Office, Harlingen, Texas		
Plant Quarantine Inspector	1	4,400
Associate Plant Quarantine Inspector	1	3,600
	1	3,500
Clerk	1	1,800
Assistant Clerk-Stenographer	1	1,680
2. Mission District		
Assistant Plant Quarantine Inspector	1	2,900
Agent	1	2,000
3. McAllen District		
Assistant Plant Quarantine Inspector	1	2,700
Agent	1	1,860
4. Pharr-Edinburg District		
Agent	1	1,860
5. Donna District		
Agent	1	2,800
	1	2,040
	1	2,000
6. Welasco District		
Assistant Plant Quarantine Inspector	1	2,800
Senior Plant Quarantine Aid	1	2,100
7. Mercedes District		
Assistant Plant Quarantine Inspector	1	2,800
Agent	1	2,000
8. La Feria District		
Agent	1	2,300
	1	2,000
9. Raymondville District		
Agent	1	2,700
10. Harlingen District		
Assistant Plant Quarantine Inspector	1	2,900
Agent	2	2,000
11. San Benito District		
Assistant Plant Quarantine Inspector	1	2,800

Senior Plant Quarantine Aid	1	2,200
Agent	1	2,000
12. Brownsville District		
Assistant Plant Quarantine Inspector	1	2,800
13. Office of Road Traffic Inspection Agent Encino, Texas		
Agent	2	1,860
14. Office of Road Traffic Inspection Agent, Rio Grand City, Texas		
Agent	2	1,860
15. Mexican Survey, Mexico		
Agent	1	2,000
10. Division of Mediterranean Fruit Fly Eradication[6]		
1. Headquarters Office, Orlando, Florida		
Federal Fruit Fly Board Members	5	6,500
Agent	1	5,000
Senior Administrative Officer	1	4,600
Junior Administrative Officer	1	3,700
Associate Plant Quarantine Inspector	1	3,200
11. Stations of Collaborators[7]		
Collaborators engaged in domestic plant-quarantine work		
Alabama	1	0
Arkansas	3	0
California	42	0 to 300
Georgia	1	0
Illinois	1	0
Indiana	3	0
Louisiana	3	0
Maryland	2	0
Michigan	3	0
Minnesota	2	0
Mississippi	9	0

[6] Because of the recent curtailment of the work in Florida, the fruit-fly personnel is so uncertain that no attempt has been made to list it.

[7] Collaborators who devote part time to the work are located as indicated. Many of these are state officers who receive no compensation from the national government. In some states each collaborator reports directly to the Washington Office, but in other states a group of collaborators may form an administrative unit.

Missouri	3	0
Nebraska	2	0
New Jersey	7	0
New Mexico	1	0
New York	17	0
North Carolina	1	0
Oregon	5	0
Pennsylvania	1	0
Rhode Island	1	0
South Carolina	1	0
Tennessee	1	0
Texas	4	0
Utah	1	0
Virginia	1	0
Washington	23	0
Wisconsin	2	0

APPENDIX 2

CLASSIFICATION OF ACTIVITIES

Explanatory Note

The Classifications of Activities in this series have for their purpose to list and classify in all practicable detail the specific activities engaged in by the several services of the national government. Such statements are of value from a number of standpoints. They furnish, in the first place, the most effective showing that can be made in brief compass of the character of work performed by the service to which they relate. Secondly, they lay the basis for a system of accounting and reporting that will permit the showing of total expenditures classified according to activities. Finally, taken collectively, they make possible the preparation of a general or consolidated statement of the activities of the government as a whole. Such a statement will reveal in detail, not only what the government is doing, but the services in which the work is being performed. It is hardly necessary to point out the value of such information in planning for future work and in considering the problem of the better distribution and coördination of the work of the government. The Institute contemplates attempting such a general listing and classification of the activities of the government upon the completion of the present series.

Classification of Activities

1. Regulation of Plant Importation
    1. Drafting, revising, and enforcement of foreign quarantines and regulatory orders under Plant Quarantine Act of 1912
        1. Issuance of permits for entry

      2. Inspection and disinfection for pests of plants and plant products arriving under permits at ports of entry
      3. Inspection of parcel-post packages, passengers' baggage, crews' quarters, and ships' stores for contraband material
      4. Field inspection of plants imported under special permit agreements
      5. Inspection and certification of certain fruits and vegetables produced in Hawaii and Porto Rico for shipment to the mainland
   2. Enforcement of rules and regulations governing the entry into the United States from Mexico of railway cars and other vehicles, freight, etc.
   3. Enforcement of the act of 1905 prohibiting importation or interstate transportation of insect pests or transmission through the mails
2. Domestic Plant Quarantine and Control
   1. Drafting, revision, and enforcement of domestic quarantines and regulatory orders
      1. General domestic quarantines under Plant Quarantine Act of 1912
      2. Quarantine and control for which specific appropriations have been made
         1. Parlatoria date scale
         2. Pink bollworm
         3. Thurberia weevil
         4. Gipsy, brown-tail, and satin moths
         5. European corn borer
         6. Japanese and Asiatic beetles
         7. White pine plister rust
         8. Phony peach disease
         9. Mexican fruit worm
         10. Mediterranean fruit fly
3. Enforcement of the act of 1915, providing for terminal inspection of plants and plant products transmitted through the mails

4. Enforcement of the act of May 11, 1926, authorizing inspection and certification of plants and plant products for export
5. Enforcement of the act of May 31, 1920 (amendment to Plant Quarantine Act of 1912), authorizing Secretary of Agriculture to regulate the movement of plants and plant products from or into the District of Columbia

APPENDIX 3

PUBLICATIONS

The Plant Quarantine and Control Administration, like its predecessor, the Federal Horticultural Board, being purely a regulatory service, issues only such publications as relate to its plant quarantine and control operations. It issues the annual reports of the Chief of the Administration, Service and Regulatory Announcements, and occasional unnumbered publications.

Annual Reports. The annual report of the Chief, after July 1, 1928, replaced the annual report of the former Federal Horticultural Board, and those portions of the former annual reports of the Bureaus of Entomology and Plant Industry which related to the enforcement of the provisions of the Plant Quarantine Act of August 20, 1912. The annual reports of the Federal Horticultural Board were issued for the fiscal years 1913 to 1928.

Service and Regulatory Announcements. Service and Regulatory Announcements have been issued for each month or for groups of months, since January, 1914, by the Federal Horticultural Board and more recently by the Plant Quarantine and Control Administration. They contain notices of quarantines and of amendments thereto; notices of the lifting of quarantines; rules and regulations supplemental to quarantines; plant quarantine decisions; Treasury decisions; orders and instructions concerning the importation, exportation, and interstate movement of specific plants and plant products; notices of hearings on proposed plant quarantines; information concerning convictions for violations of the Plant Quarantine Act; warnings to passengers and crews concerning the transportation of quarantined plants and plant products; and other information concerning questions and activities arising under the Plant Quarantine

Act and other acts enforced by the Plant Quarantine and Control Administration. Much of this information is also published in separate form, either multigraphed or in print.[1] An index to the Service and Regulatory Announcements is published annually.

Other Publications. Other publications include: "General rules and regulations for carrying out the Plant Quarantine Act," originally prepared by the Federal Horticultural Board and published as Department Circular No. 41, on September 25, 1912, and superseded by Circular No. 44, issued on May 26, 1913; "Plants and plant products prohibited by restricted entry from foreign countries, including Hawaii and Porto Rico," issued in 1921 and revised in 1922; a "List of current foreign quarantine and other restrictive orders," published in 1920, and revised in 1922; a "List of current quarantine and other restrictive orders and miscellaneous regulations," issued in June, 1929; "The Plant Quarantine Act, August 20, 1912, as amended March 4, 1913, March 4, 1917, May 31, 1920, April 13, 1926, and May 1, 1928," issued October, 1928; and Directory of field activities of the Plant Quarantine and Control Administration, issued in 1929.

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[1] For a list of the more important separate publications of the Federal Horticultural Board and the Plant Quarantine and Control Administration, see pages 189-92.

APPENDIX 4

LAWS

(A) Index to Laws

Organization	
Department of Agriculture	
Independent establishment	R. S., sec. 520
Executive department	25 Stat. L., 659
Federal Plant Quarantine Board	45 Stat. L., 565
Plant Quarantine and Control Administration	45 Stat. L., 1215
Personnel	
Officers and employees	R. S. sec. 523
Powers and Duties	
Secretary of Agriculture	R. S., secs. 520, 523, 526 25 Stat. L., 659 26 Stat. L., 288 45 Stat. L., 1215
Activities	
Enforcement of:	
Expert Certificate Act	44 Stat. L., 526
Insect Pest Act	33 Stat. L., 1269
Mexican Border Act	40 Stat. L., 374
Plant Quarantine Act	37 Stat. L., 315 37 Stat. L., 854 39 Stat. L., 1165 41 Stat. L., 726 44 Stat. L., 250 45 Stat. L., 468
Terminal Inspection Act	38 Stat. L., 1113
Eradication or control of European corn borer	44 Stat. L., 1065
Appropriations	
Annual, 1930	45 Stat. L., 1215
Deficiency, 1929, 1930	45 Stat. L., 1635, 1678
Mediterranean fruit fly control	46 Stat. L., 2

(B) Compilation of Laws

R. S., Sec. 520—Establishment of the Department of Agriculture—[Act of May 15, 1862, Sec. 1; 12 Stat. L., 387].

Sec. 520. There shall be at the seat of Government a Department of Agriculture, the general design and duties of which shall be to acquire and to diffuse among the people of the United States useful information on subjects connected with agriculture, in the most general and comprehensive sense of that word. . . .

R. S., Sec. 523—Officers and employés—[Act of May 15, 1862, Sec. 4; 12 Stat. L., 388].

Sec. 523. The Commissioner [Secretary] [1] of Agriculture shall appoint . . . such other employés as Congress may from time to time provide, with salaries corresponding to the salaries of similar officers in other Departments of the Government; and he shall, as Congress may from time to time provide, employ other persons, for such time as their services may be needed, including chemists, botanists, entomologists, and other persons skilled in the natural sciences pertaining to agriculture.

R. S., Sec. 526—Duties of Commissioner [Secretary] [1]—[Act of May 15, 1862, Sec. 3; 12 Stat. L., 387].

Sec. 526. The Commissioner [Secretary] [1] of Agriculture shall procure and preserve all information concerning agriculture which he can obtain by means of books and correspondence, and by practical and scientific experiments, accurate records of which experiments shall be kept in his office, by the collection of statistics, and by any other appropriate means within his power; . . .

1889—Act of February 9, 1889 (25 Stat. L., 659)—An Act To enlarge the powers and duties of the Department of Agriculture and to create an Executive Department to be known as the Department of Agriculture.

[Section 1]. That the Department of Agriculture,[2] shall be an Executive Department, under the supervision and control of a Secretary of Agriculture, who shall be appointed by the President, by and with the advice and consent of the Senate; and section one hundred and fifty-eight of the Revised Statutes is hereby amended to include such Department, and the provisions of title four of the Revised Statutes, including all amendments thereto, are hereby made applicable to said Department.

* * * *

Sec. 4. That all laws and parts of laws relating to the Department of Agriculture now in existence, as far as the same are applicable and not in conflict with this act, and only so far, are continued in full force and effect.

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[1] Act of July 14, 1890. See also act of February 9, 1889.

[2] See act of July 14, 1890.

1890—Act of July 14, 1890 (26 Stat. L., 282, 288)—An Act Making appropriation for the Department of Agriculture for fiscal year ending June thirtieth, anno Domini, eighteen hundred and ninety-one.

* * * *

The authority granted to the Commissioner of Agriculture by the act of May twenty-ninth, eighteen hundred and eighty-four, establishing the Bureau of Animal Industry [23 Stat. L., 31], and by the provisions of the appropriation act for the Agricultural Department, approved July eighteenth, eighteen hundred and eighty-eight [25 Stat. L., 333] [3] relating to said Bureau, is hereby vested in the Secretary of Agriculture; and the said Secretary is hereby authorized and directed to perform all the duties named in said acts and all other acts of Congress in force on February eighth, eighteen hundred and eighty-nine, to be performed by the Commissioner of Agriculture.

1905—Act of March 3, 1905 (33 Stat. L., 1269)—An Act To prohibit importation or interstate transportation of insect pests, and the use of the United States mails for that purpose.

[SECTION 1]. That no railroad, steamboat, express, stage, or other transportation company shall knowingly transport from one State or Territory into any other State or Territory, or from the District of Columbia into a State or Territory, or from a State or Territory into the District of Columbia, or from a foreign country into the United States, the gipsy moth, brown-tail moth, leopard moth, plum curculio, hop plant-louse, boll weevil, or any of them in a live state, or other insect in a live state which is notoriously injurious to cultivated crops, including vegetables, field crops, bush fruits, orchard trees, forest trees, or shade trees; or the eggs, pupæ, or larvæ of any insect injurious as aforesaid, except when shipped for scientific purposes under the regulations hereinafter provided for; nor shall any person remove from one State or Territory into another State or Territory, or from a foreign country into the United States, or from a State or Territory into the District of Columbia, or from the District of Columbia into any State or Territory, except for scientific purposes under the regulations hereinafter provided for, the gipsy moth, brown-tail moth, leopard moth, plum curculio, hop plant-louse, boll weevil, or any of them in a live state, or other insect in a live state which is notoriously injurious to cultivated crops, including vegetables, field crops, bush fruits, orchard trees, forest trees, or shade trees; or the eggs, pupæ, or larvæ of any insect injurious as aforesaid.

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[3] Temporary provision, but substantially repeated in succeeding acts of appropriation.

Sec. 2. That any letter, parcel, box, or other package containing the gipsy moth, brown-tail moth, leopard moth, plum curculio, hop plant-louse, boll weevil, or any of them in a live state, or other insect in a live state which is notoriously injurious to cultivated crops, including vegetables, field crops, bush fruits, orchard trees, forest trees, or shade trees, or any letter, parcel, box, or package which contains the eggs, pupæ, or larvæ of any insect injurious as aforesaid, whether sealed as first-class matter or not, is hereby declared to be nonmailable matter, except when mailed for scientific purposes under the regulations hereinafter provided for, and shall not be conveyed in the mails, nor delivered from any post-office, nor by any letter carrier, except when mailed for scientific purposes under the regulations hereinafter provided for; and any person who shall knowingly deposit, or cause to be deposited, for mailing or delivery, anything declared by this section to be nonmailable matter, or cause the same to be taken from the mails for the purpose of retaining, circulating, or disposing of, or of aiding in the retention, circulation, or disposition of the same shall, for each and every offense, be fined, upon conviction thereof, not more than five thousand dollars or imprisoned at hard labor not more than five years, or both, at the discretion of the court: *Provided,* That nothing in this Act shall authorize any person to open any letter of sealed matter of the first-class not addressed to himself.

Sec. 3. That it shall be the duty of the Secretary of Agriculture, and he is hereby authorized and directed to prepare and promulgate rules and regulations under which the insects covered by sections one and two of this Act may be mailed, shipped, transported, delivered, and removed, for scientific purposes, from one State or Territory into another State or Territory, or from the District of Columbia into a State or Territory, or from a State or Territory into the District of Columbia, and any insects covered by sections one and two of this Act may be so mailed, shipped, transported, delivered, and removed, for scientific purposes, under the rules and regulations of the Secretary of Agriculture: *Provided,* That the rules and regulations of the Secretary of Agriculture, in so far as they affect the method of mailing insects, shall be approved by the Postmaster-General, and nothing in this Act shall be construed to prevent any State from making and enforcing laws in furtherance of the purposes of this Act, prohibiting or regulating the admission into that State of insects from a foreign country.

Sec. 4. That any person, company, or corporation who shall knowingly violate the provisions of section one of this Act shall, for each offense, be fined, upon conviction thereof, not more than five thousand dollars, or imprisoned at hard labor not more than five years, or both, at the discretion of the court.

1912—Act of August 20, 1912 (37 Stat. L., 315)—An Act To regulate the importation of nursery stock and other plants and plant products; to enable the Secretary of Agriculture to establish and maintain quarantine districts for plant diseases and insect pests; to permit and regulate the movement of fruits, plants, and vegetables therefrom, and for other purposes, as amended by acts of March 4, 1913 (37 Stat. L., 854), March 4, 1917 (39 Stat. L., 1165), May 31, 1920 (41 Stat. L., 726), April 13, 1926 (44 Stat. L., 250), and May 1, 1928 (45 Stat. L., 468).[4]

That it shall be unlawful for any person to import or offer for entry into the United States any nursery stock unless and until a permit shall have been issued therefor by the Secretary of Agriculture, under such conditions and regulations as the said Secretary of Agriculture may prescribe, and unless such nursery stock shall be accompanied by a certificate of inspection, in manner and form as required by the Secretary of Agriculture, of the proper official of the country from which the importation is made, to the effect that the stock has been thoroughly inspected and is believed to be free from injurious plant diseases and insect pests: *Provided,* That the Secretary of Agriculture shall issue the permit for any particular importation of nursery stock when the conditions and regulations as prescribed in this act shall have been complied with: *Provided further,* That nursery stock may be imported for experimental or scientific purposes by the Department of Agriculture upon such conditions and under such regulations as the said Secretary of Agriculture may prescribe: *And provided further,* That nursery stock imported from countries where no official system of inspection for such stock is maintained may be admitted upon such conditions and under such regulations as the Secretary of Agriculture may prescribe.

[4] The act making appropriations for the Department of Agriculture for the fiscal year 1929, approved May 16, 1928, provides that the functions of the Federal Horticultural Board, under the plant quarantine act, shall devolve upon and be exercised by the Plant Quarantine and Control Administration. Provision is also made for an advisory Federal Plant Quarantine Board. These provisions are indicated in the following language:

". . . Hereafter the functions of the Federal Horticultural Board shall devolve upon and be exercised by the Plant Quarantine and Control Administration, the chief of which shall serve *ex officio* as chairman of an advisory Federal Plant Quarantine Board of five members, the four additional members to be designated by the Secretary of Agriculture from existing bureaus and offices of the Department of Agriculture, including the Bureau of Entomology, the Bureau of Plant Industry, and the Forest Service, and who shall serve without additional compensation."

Sec. 2. That it shall be the duty of the Secretary of the Treasury promptly to notify the Secretary of Agriculture of the arrival of any nursery stock at port of entry; that the person receiving such stock at port of entry shall, immediately upon entry and before such stock is delivered for shipment or removed from the port of entry, advise the Secretary of Agriculture or, at his direction, the proper State, Territorial, or District official of the State or Territory or the District to which such nursery stock is destined, or both, as the Secretary of Agriculture may elect, of the name and address of the consignee, the nature and quantity of the stock it is proposed to ship, and the country and locality where the same was grown. That no person shall ship or offer for shipment from one State or Territory or District of the United States into any other State or Territory or District, any nursery stock imported into the United States without notifying the Secretary of Agriculture or, at his direction, the proper State, Territorial, or District official of the State or Territory or District to which such nursery stock is destined, or both, as the Secretary of Agriculture may elect, immediately upon the delivery of the said stock for shipment, of the name and address of the consignee, of the nature and quantity of stock it is proposed to ship, and the country and locality where the same was grown, unless and until such imported stock has been inspected by the proper official of a State, Territory, or District of the United States.

Sec. 3. That no person shall import or offer for entry into the United States any nursery stock unless the case, box, package, crate, bale, or bundle thereof shall be plainly and correctly marked to show the general nature and quantity of the contents, the country and locality where the same was grown, the name and address of the shipper, owner, or person shipping or forwarding the same, and the name and address of the consignee.

Sec. 4. That no person shall ship or deliver for shipment from one State or Territory or District of the United States into any other State or Territory or District any such imported nursery stock, the case, box, package, crate, bale, or bundle whereof is not plainly marked so as to show the general nature and quantity of the contents, the name and address of the consignee, and the country and locality where such stock was grown, unless and until such imported stock has been inspected by the proper official of a State, Territory, or District of the United States.

Sec. 5. That whenever the Secretary of Agriculture shall determine that the unrestricted importation of any plants, fruits, vegetables, roots, bulbs, seeds, or other plant products not included by the term " nursery stock " as defined in section six of this act may result in the entry into the United States or any of its Territories or Districts of injurious plant diseases or insect pests, he shall promulgate his determination, specifying the class of plants and plant products the importation of which shall be restricted and the country and locality where they are grown, and thereafter, and until such promulgation is withdrawn, such plants and plant products imported or offered for import into the United States or any of its Territories or Districts shall be subject to all the provisions of the foregoing sections of this act: *Provided,* That before the Secretary of Agriculture shall promulgate his determination that the unrestricted importation of any plants, fruits, vegetables, roots, bulbs, seeds, or other plant products not included by the term " nursery stock " as defined in section six of this act may result in the entry into the United States or any of its Territories or Districts of injurious plant diseases or insect pests he shall, after due notice, give a public hearing, under such rules and regulations as he shall prescribe, at which hearing any interested party may appear and be heard, either in person or by attorney.

Sec. 6. That for the purpose of this act the term " nursery stock " shall include all field-grown florists' stock, trees, shrubs, vines, cuttings, grafts, scions, buds, fruit pits and other seeds of fruit and ornamental trees or shrubs, and other plants and plant products for propagation, except field, vegetable, and flower seeds, bedding plants, and other herbaceous plants, bulbs, and roots.

Sec. 7. That whenever, in order to prevent the introduction into the United States of any tree, plant, or fruit disease or of any injurious insect, new to or not theretofore widely prevalent or distributed within and throughout the United States, the Secretary of Agriculture shall determine that it is necessary to forbid the importation into the United States of any class of nursery stock or of any other class of plants, fruits, vegetables, roots, bulbs, seeds, or other plant products from a country or locality where such disease or insect infestation exists, he shall promulgate such determination, specifying the country and locality and the class of nursery stock or other class of plants, fruits, vegetables, roots, bulbs, seeds, or other plant products which, in his opinion, should be excluded. Following the promulgation of such determination by the Secretary of Agriculture, and until the withdrawal of the said promulgation by him, the importation of the class of nursery stock or of other class of plants, fruits, vegetables, roots, bulbs, seeds, or other plant products specified in the said promulgation from the country and locality therein named, regardless of the use for which the same is intended, is hereby prohibited; and until the withdrawal of the said promulgation by the Secretary of Agriculture, and notwithstanding that such class of nursery stock, or other class of plants, fruits, vegetables, roots, bulbs, seeds, or other plant products be accompanied by a certificate of inspection from the country of importation, no person shall import or offer for entry into the United States from any country or locality specified in such promulgation, any of the class of nursery stock or of other class of plants, fruits, vegetables, roots, bulbs, seeds, or other plant products named therein, regardless of the use for which the same is intended: *Provided,* That before the Secretary of Agriculture shall promulgate his determination that it is necessary to forbid the importation into the United States of the articles named in this section he shall, after due notice to interested parties, give a public hearing, under such rules and regulations as he shall prescribe, at which hearing any interested party may appear and be heard, either in person or by attorney: *Provided further,* That the quarantine provisions of this section, as applying to the white-pine blister rust, potato wart, and the Mediterranean fruit fly, shall become and be effective upon the passage of this act: *Provided further,* That hereafter any class of nursery stock or of any other class of plants, fruits, vegetables, roots, bulbs, seeds, or other plant products of which the importation may be forbidden from any country or locality under the provisions of section seven of the Plant Quarantine Act approved August twentieth, nineteen hundred and twelve (Thirty-seventh Statutes, page three hundred and fifteen), may be imported for experimental or scientific purposes by the Department of Agriculture upon such conditions and under such regulations as the said Secretary of Agriculture may prescribe.

Sec. 8. That the Secretary of Agriculture is authorized and directed to quarantine any State, Territory, or District of the United States, or any portion thereof, when he shall determine that such quarantine is necessary to prevent the spread of a dangerous plant disease or insect infestation, new to or not theretofore widely prevalent or distributed within and throughout the United States; and the Secretary of Agriculture is directed to give notice of the establishment of such quarantine to common carriers doing business in or through such quarantined area, and shall publish in such newspapers in the quarantined area as he shall select notice of the establishment of quarantine. That no person shall ship or offer for shipment to any common carrier, nor shall any common carrier receive for transportation or transport, nor shall any person carry or transport from any quarantined State or Territory or District of the United States, or from any quarantined portion thereof, into or through any other State or Territory or District, any class of nursery stock or any other class of plants, fruits, vegetables, roots, bulbs, seeds, or other plant products, or any class of stone or quarry products, or any other article of any character whatsoever, capable of carrying any dangerous plant disease or insect infestation, specified in the notice of quarantine except as hereinafter provided. That it shall be unlawful to move, or allow to be moved, any class of nursery stock or any other class of plants, fruits, vegetables, roots, bulbs, seeds, or other plant products, or any class of stone or quarry products or any other article of any character whatsoever, capable of carrying any dangerous plant disease or insect infestation, specified in the notice of quarantine hereinbefore provided, and regardless of the use for which the same is intended, from any quarantined State or Territory or District of the United States or quarantined portion thereof, into or through any other State or Territory or District, in manner or method or under conditions other than those prescribed by the Secretary of Agriculture. That it shall be the duty of the Secretary of Agriculture, when the public interests will permit, to make and promulgate rules and regulations which shall permit and govern the inspection, disinfection, certification, and method and manner of delivery and shipment of the class of nursery stock or of any other class of plants, fruits, vegetables, roots, bulbs, seeds, or other plant products, or any class of stone or quarry products, or any other article of any character whatsoever, capable of carrying any dangerous plant disease or inset infestation, specified in the notice of quarantine hereinbefore provided, and regardless of the use for which the same is intended, from a quarantined State or Territory or District of the United States, or quarantined portion thereof, into or through any other State or Territory or District; and the Secretary of Agriculture shall give notice of such rules and regulations as hereinbefore provided in this section for the notice of the establishment of quarantine: *Provided,* That before the Secretary of Agriculture shall promulgate his determination that it is necessary to quarantine any State, Territory, or District of the United States, or portion thereof, under the authority given in this section, he shall, after due notice to interested parties, give a public hearing under such rules and regulations as he shall prescribe, at which hearing any interested party may appear and be heard, either in person or by attorney: *Provided further,* That until the Secretary of Agriculture shall have made a determination that such a quarantine is necessary and has duly established the same with reference to any dangerous plant disease or insect infestation, as herein above provided, nothing in this Act shall be construed to prevent any State, Territory, Insular Possession, or District from promulgating, enacting, and enforcing any quarantine, prohibiting or restricting the transportation of any class of nursery stock, plant, fruit, seed, or other product or article subject to the restrictions of this section, into or through such State, Territory, District, or portion thereof, from any other State, Territory, District, or portion thereof, when it shall be found, by the State, Territory, or District promulgating or enacting the same, that such dangerous plant disease or insect infestation exists in such other State, Territory, District, or portion thereof: *Provided further,* That the Secretary of Agriculture is hereby authorized, whenever he deems such action advisable and necessary to carry out the purposes of this Act, to coöperate with any State, Territory, or District, in connection with any quarantine, enacted or promulgated by such State, Territory, or District, as specified in the preceding proviso: *Provided further,* That any nursery stock, plant, fruit, seed, or other product or article, subject to the restrictions of this section, a quarantine with respect to which shall have been established by the Secretary of Agriculture under the provisions of this Act shall, when transported to, into, or through any State, Territory, or District, in violation of such quarantine, be subject to the operation and effect of the laws of such State, Territory, or District, enacted in the exercise of its police powers, to the same extent and in the same manner as though such nursery stock, plant, fruit, seed, or other product or article had been produced in such State, Territory, or District, and shall not be exempt therefrom by reason of being introduced therein in original packages or otherwise.

Sec. 9. That the Secretary of Agriculture shall make and promulgate such rules and regulations as may be necessary for carrying out the purposes of this Act.

Sec. 10. That any person who shall violate any of the provisions of this Act, or who shall forge, counterfeit, alter, deface, or destroy any certificate provided for in this Act or in the regulations of the Secretary of Agriculture, shall be deemed guilty of a misdemeanor and shall, upon conviction thereof, be punished by a fine not exceeding $500 or by imprisonment not exceeding one year, or both such fine and imprisonment, in the discretion of the court: *Provided,* That no common carrier shall be deemed to have violated the provisions of any of the foregoing sections of this Act on proof that such carrier did not knowingly receive for transportation or transport nursery stock or other plants or plant products as such from one State, Territory, or District of the United States into or through any other State, Territory, or District; and it shall be the duty of the United States attorneys diligently to prosecute any violations of this Act which are brought to their attention by the Secretary of Agriculture or which come to their notice by other means.

That any employee of the Department of Agriculture, authorized by the Secretary of Agriculture to enforce the provisions of this Act and furnished with and wearing a suitable badge for identification, who has probable cause to believe that any person coming into the United States, or any vehicle, receptacle, boat, ship, or vessel, coming from any country or countries or moving interstate, possesses, carries, or contains any nursery stock, plants, plant products, or other articles the entry or movement of which in interstate or foreign commerce is prohibited or restricted by the provisions of this Act, or by any quarantine or order of the Secretary of Agriculture issued or promulgated pursuant thereto, shall have power to stop and, without warrant, to inspect, search, and examine such person, vehicle, receptacle, boat, ship, or vessel, and to seize, destroy or otherwise dispose of, such nursery stock, plants, plant products, or other articles found to be moving or to have been moved in interstate commerce or to have been brought into the United States in violation of this Act or of such quarantine or order.

Sec. 11. That the word " person " as used in this Act shall be construed to import both the plural and the singular, as the case demands, and shall include corporations, companies, societies, and associations. When construing and enforcing the provisions of this Act, the act, omission, or failure of any officer, agent, or other person acting for or employed by any corporation, company, society, or association, within the scope of his employment or office, shall in every case be also deemed to be the act, omission, or failure of such corporation, company, society, or association as well as that of the person.

Sec. 12. That for the purpose of carrying out the provisions of this Act there shall be appointed by the Secretary of Agriculture from existing bureaus and offices in the Department of Agriculture, including the Bureau of Entomology, the Bureau of Plant Industry, and the Forest

Service, a Federal Horticultural Board consisting of five members, of whom not more than two shall be appointed from any one bureau or office, and who shall serve without additional compensation.

Sec. 13. That there is hereby appropriated, out of the moneys in the Treasury not otherwise appropriated, to be expended as the Secretary of Agriculture may direct, for the purposes and objects of this act, the sum of $25,000.

Sec. 14. That this Act shall become and be effective from and after the first day of October, nineteen hundred and twelve, except as herein otherwise provided.

Sec. 15. That in order further to control and eradicate and to prevent the dissemination of dangerous plant diseases and insect infections and infestations no plant or plant products for or capable of propagation, including nursery stock, hereinafter referred to as plants and plant products, shall be moved or allowed to be moved, shipped, transported, or carried by any means whatever into or out of the District of Columbia, except in compliance with such rules and regulations as shall be prescribed by the Secretary of Agriculture as hereinafter provided. Whenever the Secretary of Agriculture, after investigation, shall determine that any plants and plant products in the District of Columbia are infested or infected with insect pests and diseases and that any place, articles, and substances used or connected therewith are so infested or infected, written notice thereof shall be given by him to the owner or person in possession or control thereof, and such owner or person shall forthwith control or eradicate and prevent the dissemination of such insect pest or disease and shall remove, cut, or destroy such infested and infected plants, plant products, and articles and substances used or connected therewith, which are hereby declared to be nuisances, within the time and in the manner required in said notice or by the rules and regulations of the Secretary of Agriculture. Whenever such owner or person cannot be found, or shall fail, neglect, or refuse to comply with the foregoing provisions of this section, the Secretary of Agriculture is hereby authorized and required to control and eradicate and prevent dissemination of such insect pest or disease and to remove, cut, or destroy infested or infected plants and plant products and articles and substances used or connected therewith, and the United States shall have an action of debt against such owner or persons for expenses incurred by the Secretary of Agriculture in that behalf. Employees of the Federal Horticultural Board are hereby authorized and required to inspect places, plants, and plant products and articles and substances used or connected therewith whenever the Secretary of Agriculture shall determine that such inspections are necessary for the purposes of this section. For the purpose of carrying out the provisions and requirements of this section and of the rules and regulations of the Secretary of Agriculture made hereunder, and the notices given pursuant thereto, employees of the Federal Horticultural Board shall have power with a warrant to enter into or upon any place and open any bundle, package, or other container of plants or plant products whenever they shall have cause to believe that infections or infestations of plant pests and diseases exist therein or thereon, and when such infections or infestations are found to exist, after notice by the Secretary of Agriculture to the owner or person in possession or control thereof and an opportunity by said owner or person to be heard, to destroy the infected or infested plants or plant products contained therein. The police court or the municipal court of the District of Columbia shall have power, upon information supported by oath or affirmation showing probable cause for believing that there exists in any place, bundle, package, or other container in the District of Columbia any plant or plant product which is infected or infested with plant pests or disease, to issue warrants for the search for and seizure of all such plants and plant products. It shall be the duty of the Secretary of Agriculture, and he is hereby required, from time to time, to make and promulgate such rules and regulations as shall be necessary to carry out the purposes of this section, and any person who shall move or allow to be moved, or shall ship, transport, or carry, by any means whatever, any plant or plant products from or into the District of Columbia, except in compliance with the rules and regulations prescribed under this section, shall be punished, as is provided in Section 10 of this Act.

1915—Act of March 4, 1915 (38 Stat. L., 1086, 1113)—An Act Making appropriations for the Department of Agriculture for the fiscal year ending June thirtieth, nineteen hundred and sixteen.

* * * *

That hereafter when any State shall provide for terminal inspection of plants and plant products, and shall establish and maintain, at the sole expense of the State, such inspection at one or more places therein, the proper officials of said State may submit to the Secretary of Agriculture a list of plants and plant products and the plant pests transmitted thereby, that in the opinion of said officials should be subject to terminal inspection in order to prevent the introduction or dissemination in said State of pests injurious to agriculture. Upon his approval of said list, in whole or in part, the Secretary of Agriculture shall transmit the same to the Postmaster General, and thereafter all packages containing any plants or plant products named in said approved lists shall, upon payment of postage therefor, be forwarded by the postmaster at the destination of said package to the proper State official at the nearest place where inspection is maintained. If the plant or plant products are found upon inspection to be free from injurious pests, or if infected shall be disinfected by said official, they shall upon payment of postage therefor be returned to the postmaster at the place of inspection to be forwarded to the person to whom they are addressed; but if found to be infected with injurious pests and incapable of satisfactory disinfection the State inspector shall so notify the postmaster at the place of inspection, who shall promptly notify the sender of said plants or plant products that they will be returned to him upon his request and at his expense, or in default of such request that they will be turned over to the State authorities for destruction.

On and after the passage and approval of this Act it shall be unlawful for any person, firm, or corporation to deposit in the United States mails any package containing any plant or plant product addressed to any place within a State maintaining inspection thereof, as herein defined, without plainly marking the package so that its contents may be readily ascertained by an inspection of the outside thereof. Whoever shall fail to so mark said packages shall be punished by a fine of not more than $100.

The Postmaster General is hereby authorized and directed to make all needful rules and regulations for carrying out the purposes hereof.

1917—Act of October 6, 1917 (40 Stat. L., 345, 374).—An Act Making appropriations to supply urgent deficiencies in appropriations for the fiscal year ending June thirtieth, nineteen hundred and eighteen, and prior fiscal years, on account of war expenses, and for other purposes.

[Section 1]. . . . On account of the menace to cotton culture in the United States arising from the existence of the pink bollworm in Mexico, the Secretary of Agriculture, in order to prevent the establishment and spread of such worm in Texas and other parts of the United States, is authorized to make surveys to determine its actual distribution in Mexico; to establish, in coöperation with the States concerned, a zone or zones free from cotton culture on or near the border of any State or States adjacent to Mexico; and to coöperate with the Mexican Government or local Mexican authorities in the extermination of local infestations near the border of the United States.

1926—Act of May 11, 1926 (44 Stat. L., 499, 526)—An Act Making appropriations for the Department of Agriculture for the fiscal year ending June 30, 1927, and for other purposes.

* * * *

To enable the Secretary of Agriculture . . . to inspect, under such rules and regulations as the Secretary of Agriculture may prescribe, domestic fresh fruits, vegetables, and seeds, and nursery stock and other plants for propagation, when offered for export, and to certify to shippers and interested parties as to the freedom of such products from injurious plant diseases and insect pests according to the sanitary requirements of foreign countries, and to make such reasonable charges and to use such means as may be necessary to accomplish this object: *Provided,* That any moneys received in payment of charges fixed by the Secretary of Agriculture on account of . . . such inspection and certification shall be covered into the Treasury as miscellaneous receipts. . . .

1927—Act of February 9, 1927 (44 Stat. L., 1065)—An Act To provide for the eradication or control of the European corn borer.

That to enable the Secretary of Agriculture to apply such methods of eradication or control of the European corn borer as in his judgment may be necessary, including the employment of persons and means in the District of Columbia and elsewhere and all other necessary expenses, the sum of $10,000,000 is hereby authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, to be expended in coöperation with such authorities of the States concerned, organizations, or individuals as the Secretary may deem necessary to accomplish such purposes: *Provided,* That in the discretion of the Secretary of Agriculture no expenditures shall be made hereunder until the States wherein the European corn borer exists shall have provided necessary regulatory legislation and until a sum or sums adequate to State cooperation shall have been appropriated, subscribed, or contributed by States, county, or local authorities or individuals or organizations: *Provided further,* That expenditures from this appropriation for any necessary farm clean-up incidental to such eradication or control shall include only such as are, in the judgment of the Secretary of Agriculture, additional to those normal and usual in farm operations: *Provided further,* That no part of this appropriation shall be used to pay the cost or value of corn or other farm crops or other property injured or destroyed: *And provided further,* That the Secretary of Agriculture may receive, and shall cover into the Treasury as miscellaneous receipts, any and all moneys authorized by the law of any State to be paid to the United States out of amounts assessed against and collected from any owner of premises who refuses or neglects to carry out State-control requirements, when such moneys represent expenditures made on such premises by the United States under the provisions of this Act.

1928—Act of May 16, 1928 (45 Stat. L., 539, 565)—An Act Making appropriations for the Department of Agriculture for the fiscal year ending June 30, 1929, and for other purposes.

* * * *

Hereafter the functions of the Federal Horticultural Board shall devolve upon and be exercised by the Plant Quarantine and Control Administration, the Chief of which shall serve *ex officio* as chairman of an advisory Federal Plant Quarantine Board of five members, the four additional members to be designated by the Secretary of Agriculture from existing bureaus and offices of the Department of Agriculture, including the Bureau of Entomology, the Bureau of Plant Industry, and the Forest Service, and who shall serve without additional compensation.

1929—Act of February 16, 1929 (45 Stat. L., 1189, 1215)—An Act Making appropriations for the Department of Agriculture for the fiscal year ending June 30, 1930, and for other purposes.

* * * *

PLANT QUARANTINE AND CONTROL ADMINISTRATION.

Salaries and general expenses. To enable the Secretary of Agriculture to carry into effect the provisions of the plant quarantine Act of August 20, 1912, as amended, and to conduct the other activities hereinafter authorized, independently or in coöperation with the States and other agencies, organizations, and individuals concerned, including necessary expenses for supplies and equipment, rent outside the District of Columbia, and the employment of necessary persons and means in the city of Washington and elsewhere as follows:

For necessary expenses for general administrative purposes including the salary of chief of administration and other personal services in the District of Columbia, $73,000.

For enforcement of foreign plant quarantines and to prevent the movement of cotton and cottonseed from Mexico into the United States, including the regulation of the entry into the United States of railway cars and other vehicles, and freight, express, baggage, or other materials from Mexico, and the inspection, cleaning, and disinfection thereof, including construction and repair of necessary buildings, plants, and equipment for the fumigation, disinfection, or cleaning of products, railway cars, or other vehicles entering the United States from Mexico, $550,000: *Provided,* That any moneys received in payment of charges fixed by the Secretary of Agriculture on account of such cleaning and disinfection shall be covered into the Treasury as miscellaneous receipts.

For the control and prevention of spread of the pink bollworm, including the establishment of such cotton-free areas as may be necessary to stamp out any infestation, the erection and repair of necessary inspection stations, and for necessary surveys and control operations in Mexico in coöperation with the Mexican Government or local Mexican authorities, the unexpended balance of the funds available for this purpose for the fiscal year 1929 is continued available for the fiscal year 1930, together with $397,120 of the unexpended balance of the appropriation of $5,000,000 for establishing and enforcing noncotton zones, carried in the Second Deficiency Act, fiscal year 1928: *Provided,* That the cost of each such station shall not exceed $500, and that the total amount expended for such stations in one year shall not exceed $2,500.

For the control and prevention of spread of the Parlatoria date scale, $86,700: *Provided,* That of this amount $70,000, of which $35,000 shall be immediately available, may be expended only when the States of Arizona and California shall have jointly contributed $35,000 for this purpose.

For the control and prevention of spread of the Thurberia weevil, $34,300.

For the control and prevention of spread of the gipsy and browntail moths, $567,500.

For the control and prevention of spread of the European corn borer, $898,000: *Provided,* That in addition thereto there shall be immediately available for this purpose $50,000 of the $10,000,000 appropriated by the joint resolution making an appropriation for the eradication or control of the European corn borer, approved February 23, 1927 (U. S. C., Supp. I, p. 22, sec. 146).

For the control and prevention of spread of the Japanese and Asiatic beetles, $267,000.

For the control and prevention of spread of the white-pine blister rust, $27,000.

For the control and prevention of spread of the phony peach disease, $15,000, to be immediately available.

For the control and prevention of spread of the Mexican fruit worm, including necessary surveys and control operations in Mexico in coöperation with the Mexican Government or local Mexican authorities, $85,000, together with $30,000 of the unexpended balance of the appropriation for this purpose contained in the First Deficiency Act, fiscal year 1928.

Certification of exports: For the inspection, under such rules and regulations as the Secretary of Agriculture may prescribe, of domestic fresh fruits, vegetables, and seeds and nursery stock and other plants for propagation when offered for export and to certify to shippers and interested parties as to the freedom of such products from injurious plant diseases and insect pests according to the sanitary requirements of the foreign countries affected and to make such reasonable charges and to use such means as may be necessary to accomplish this object, $30,000: *Provided,* That moneys received on account of such inspection and certification shall be covered into the Treasury as miscellaneous receipts.

Total, Plant Quarantine and Control Administration, $2,633,500, of which amount not to exceed $244,000 may be expended for personal services in the District of Columbia.

1929—Act of March 4, 1929 (45 Stat. L., 1623, 1635, 1678)—An Act Making appropriations to supply deficiencies in certain appropriations for the fiscal year ending June 30, 1929, and prior fiscal years, to provide supplemental appropriations for the fiscal years ending June 30, 1929, and June 30, 1930, and for other purposes.

TITLE I. . . . DEPARTMENT OF AGRICULTURE.

* * * *

Plant Quarantine and Control Administration. Japanese and Asiatic Beetles: For an additional amount for the control and prevention of spread of the Japanese and Asiatic beetles, including the same objects specified under this head in the Agricultural Appropriation Act for the fiscal year 1929, and including not to exceed $18,000 for screening the greenhouses in the grounds of the Department of Agriculture and those on the Arlington Farm in Virginia, $110,000.

Preventing spread of gipsy moth: For an additional amount for the control and prevention of spread of the gipsy and brown-tail moth, including the same objects specified under this head in the Agricultural Appropriation Act for the fiscal year 1929, $50,000.

* * * *

TITLE II. SUPPLEMENTAL APPROPRIATIONS UNDER THE ACT OF MAY 28, 1928, AMENDING THE CLASSIFICATION ACT OF 1923.

* * * *

Plant Quarantine and Control Administration: For "Salaries and Expenses, Plant Quarantine and Control Administration, 1929," $60,760.

1929—Joint Resolution of May 2, 1929 (46 Stat. L., 2)—Joint Resolution To provide funds for the eradication, control, and prevention of the spread of the Mediterranean fruit fly.

That to enable the Secretary of Agriculture to meet the emergency caused by the presence of the Mediterranean fruit fly in the United States, not to exceed $4,250,000 of the unexpended balance of the appropriation of $5,000,000 for establishing and enforcing noncotton zones carried in the Second Deficiency Act, fiscal year 1928, is hereby made available until June 30, 1930, for necessary expenses for the eradication, control, and prevention of the spread of this pest, the employment of persons and means in the city of Washington and elsewhere, and for other expenses, including objects specified in the Agricultural Appropriation Acts for the fiscal years 1929 and 1930 under the heading "Salaries and general expenses, Plant Quarantine and Control Administration," and for necessary investigations, for printing, and for the purchase, maintenance, repair, and operation of passenger-carrying vehicles outside of the District of Columbia: *Provided,* That in the discretion of the Secretary of Agriculture no expenditure shall be made hereunder until a sum or sums adequate to State coöperation shall have been appropriated, subscribed, or contributed by States, county, or local authorities or individuals or organizations.

APPENDIX 5

FINANCIAL STATEMENT

Explanatory Note

Statements showing appropriations, receipts, expenditures and other financial data for a series of years constitute the most effective single means of exhibiting the growth and development of a service. Due to the fact that Congress has adopted no uniform plan of appropriation for the several services and that the latter employ no uniform plan in respect to the recording and reporting of their receipts and expenditures, it is impossible to present data of this character according to any standard scheme of presentation. In the case of some services the administrative reports contain tables showing financial conditions and operations of the service in considerable detail; in others financial data are almost wholly lacking. Careful study has in all cases been made of such data as are available, and the effort has been made to present the results in such a form as will exhibit the financial operations of the services in the most effective way that circumstances permit.

In the financial statement the figures are on an accrual basis except where otherwise indicated. They were obtained from "Combined Statement of the Receipts and Disbursements, Balances, etc., of the United States," issued by the Treasury Department.

FEDERAL HORTICULTURAL BOARD AND PLANT QUARANTINE AND CONTROL ADMINISTRATION

FEDERAL HORTICULTURAL BOARD

APPROPRIATIONS AND EXPENDITURES, FISCAL YEARS 1913 TO 1920, INCLUSIVE

Items	1913		1914		1915		1916	
	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures
Nursery plant inspection and quarantine.	[a]$25,000.00	$24,472.31	......	......	......	......	......	......
Enforcement of Plant Quarantine Act...	[b]10,000.00	9,977.70	[b]$30,000.00	$25,492.34	$50,000.00	$41,547.15	$50,000.00	$49,930.42
Domestic potato quarantine............	......	......	......	......	50,000.00	49,066.93	[c]100,000.00	21,879.23
Total	$35,000.00	$34,450.01	$30,000.00	$25,492.34	$100,000.00	$90,614.08	$150,000.00	$71,809.65

Items	1917		1918		1919		1920	
	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures
Salaries, Federal Horticultural Board...	$13,640.00	$12,080.35	$20,500.00	$18,076.39	$26,500.00	$19,339.09	$31,300.00	$30,742.17
Increase of compensation...............	......	......	1,602.72	1,602.72	3,770.99	3,770.99	23,006.01	23,006.01
Enforcement of Plant Quarantine Act....	62,875.54	53,308.30	54,500.00	46,791.85	48,300.00	46,439.35	47,700.00	47,688.58
Extermination of potato wart..........	......	......	......	......	......	......	50,000.00	39,712.00
Suppressing spread of pink bollworm of cotton	[d]50,000.00	49,861.56	250,000.00	244,933.51	500,000.00	305,566.47	595,800.00	545,623.24
Total	$126,515.54	$115,250.21	$326,602.72	$311,404.47	$578,570.99	$375,115.90	$747,806.01	$686,772.00

[a] Included in Plant Quarantine Act, available October 1, 1912, and until used.
[b] $40,000 appropriated for 1913-14, $10,000 was available for 1913, and $30,000 for 1914.
[c] Of $100,000 appropriated for 1915-16, $25,000 was available for 1915.
[d] Appropriation of $50,000 available in 1917 and until used.

APPROPRIATIONS AND EXPENDITURES, FISCAL YEARS 1921 TO 1928, INCLUSIVE—CONTINUED

Items	1921		1922		1923		1924	
	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures
Salaries, Federal Horticultural Board...	$33,300.00	$32,278.89	$46,600.00	$45,758.87	$53,440.00	$53,064.10	$51,520.00	$51,147.44
Increase of compensation...............	36,411.72	36,411.72	43,516.46	43,516.46	44,564.35	44,564.35	44,701.23	44,701.23
Enforcement of Plant Quarantine Act....	125,450.00	119,050.86	113,410.00	107,026.54	105,850.00	104,897.35	306,490.00	271,105.40
Extermination of potato wart..........	35,300.00	34,591.06	25,300.00	22,788,02	25,300.00	20,375.38	5,000.00	1,361.09
Suppressing spread of pink bollworm of cotton	[a]573,560.00	527,394.99	604,840.00	569,581.90	622,840.00	498,447.01	411,400.00	342,856.35
Eradication of date scale................	[b]5,000.00	4,971.76	[b]10,000.00	9,825.57	13,000.00	12,639.96	13,000.00	12,156.40
Total	$809,021.72	$754,699.28	$843,666.46	$798,497.36	$864,994.35	$733,988.15	$832,111.23	$723,327.91

Items	1925		1926		1927		1928	
	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures [c]
Salaries, Federal Horticultural Board....	$59,240.00	$58,449.67	$59,240.00	$59,239.15	$58,510.00	$57,807.49	[d]	[d]
Enforcement of Plant Quarantine Act...	352,134.00	326,321.68	370,000.00	369,925.47	425,000.00	419,870.61	[e]$517,910.00	[e]$513,460.63
Extermination of potato wart...........	5,110.00	......	5,110.00	......	......	......	......	......
Suppressing spread of pink bollworm of cotton	401,670.00	299,663.85	300,000.00	238,853.15	[f]300,000.00	276,873.84	[g]5,435,500.96	434,778.00
Eradication of date scale................	21,760.00	20,911.26	21,760.00	21,660.35	21,760.00	20,563.41	44,000.00	42,990.62
Prevention of spread of Thurberia weevil.	......	......	......	......	......	......	32,800.00	32,420.70
Total	$839,914.00	$705,346.46	$756,110.00	$689,678.12	$805,270.00	$775,115.35	$6,030,210.96	$1,023,649.95

[a] Includes appropriation for 1920-21 of $200,000.

[b] Of $15,000 appropriated for 1921-22, $5000 was allotted to 1921 and $10,000 to 1922.

[c] Expenditures to April 30, 1930.

[d] Salaries included in "Enforcement of Plant Quarantine Act."

[e] Includes "Salaries, Federal Horticultural Board."

[f] Includes $35,000 to be used for prevention of spread of Thurberia weevil.

[g] Includes $102,700.96 expended in 1928 out of an appropriation for 1928-29, and $5,000,000 deficiency appropriation not expended and later reappropriated.

PLANT QUARANTINE AND CONTROL ADMINISTRATION

APPROPRIATIONS AND EXPENDITURES FISCAL YEAR 1929; APPROPRIATIONS 1930

Items	1929		1930 Appropriations
	Appropriations	Expenditures [a]	
General Administration	[b]$105,790.00	$105,544.66	[c]$359,600.00
Enforcement of foreign plant quarantines	525,010.00	510,683.61	570,000.00
Pink bollworm of cotton	[d]400,999.04	398,526.51	[e]552,120.00
Parlatoria date scale	[f]24,512.70	24,373.42	[g]78,887.30
Thurberia weevil	34,360.00	30,675.02	34,300.00
Gipsy and brown-tail moths	618,380.00	611,236.93	667,500.00
European corn borer	[h]894,380.00	884,703.98	[i]948,000.00
Japanese beetle	378,700.00	372,196.60	455,000.00
White pine blister rust	27,050.00	26,369.10	27,000.00
Mexican fruit worm	101,140.00	90,301.32	[j]115,000.00
Certification of exports	31,600.00	19,927.36	30,000.00
Phony peach disease	[k]954.74	954.74	[l]14,045.26
Mediterranean fruit fly	[m]1,215,000.00	1,205,228.74	[n]4,038,400.00
Pink bollworm clean-up	[o]25,000.00	12,748.87	587,500.00
Total	$4,382,876.48	$4,293,470.86	$8,477,352.56

[a] Expenditures to April 30, 1930.

[b] Includes $32,500 transferred from pink bollworm of cotton to meet emergency caused by the Mediterranean fruit fly.

[c] Includes appropriation for 1930, $73,000 plus $286,600 transferred from various sub-appropriations to provide funds for Mediterranean fruit fly.

[d] Includes appropriation for 1929, $487,800 plus Welsh Act appropriation of $3400, less $32,500 transferred to general administration, less $77,500 transferred to 1930 pink bollworm account; also includes $200,000 appropriation for 1928-29, less $102,700.96 expended in 1928, less $77,500 transferred to regular 1930 appropriation.

[e] Includes $397,120 made available from $5,000,000 appropriation for pink bollworm in 1928, plus $77,500 transferred from $487,800 appropriation in 1929, plus $77,500 transferred from 1928-29 pink bollworm appropriation.

[f] Includes appropriation of $16,700 for 1929 plus $7812.70 expended out of appropriation of $86,700 for 1929-30.

[g] Appropriation of $86,700 for 1929-30, less $7812.70 expended in 1929.

[h] Exclusive of $50,000 appropriated for 1929-30, none of which was expended in 1929.

[i] Includes appropriation of $898,000 plus $50,000 appropriated for 1929-30.

[j] Includes $30,000 for Bureau of Entomology, reappropriated from deficiency act, 1928.

[k] Expended in 1929 out of appropriation of $15,000 for 1929-30.

[l] $15,000 appropriation for 1929-30, less $954.74 expended in 1929.

[m] Amount allotted for expenditure in 1929, out of $4,250,000 reappropriated for Mediterranean fruit fly from $5,000,000 pink bollworm appropriation, 1928.

[n] Includes $3,035,000, or $4,250,000 reappropriated for Mediterranean fruit fly less $1,215,000 allotted to 1929 (see note m); plus $1,003,400, or $1,290,000 for 1930, less $286,600 transferred back to various sub-appropriations (see note c).

[o] Amount reappropriated from $5,000,000 pink bollworm appropriation for 1928.

APPENDIX 6

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EXPLANATORY NOTE

The bibliographies appended to the several monographs aim to list only those works which deal directly with the services to which they relate, their history, activities, organization, methods of business, problems, etc. They are intended primarily to meet the needs of those persons who desire to make a further study of the services from an administrative standpoint. They thus do not include the titles of publications of the services themselves, except in so far as they treat of the services, their work and problems. Nor do they include books or articles dealing merely with technical features other than administrative of the work of the services. In a few cases explanatory notes have been appended where it was thought they would aid in making known the character or value of the publication to which they relate.

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